

Financial Management

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Finance Function

Definitions of the term “finance function” in relation to business fall into three broad groupings. One defines the finance function in a business as simply the task of providing funds needed by the enterprise on terms that are most favourable in the light of its objectives. Similar to the dictionary meaning of the word “finance”, this approach is concerned almost exclusively with the procurement of funds. It is, of course, widened to cover a discussion of the instruments, institutions and practices through which funds are obtained. It also covers the legal and accounting relationships between a company and its sources of funds. This approach assumes that the expenditure decisions, giving rise to the demand for capital, are made elsewhere within a business and the financial manager is left with the task of determining how these funds can best be raised.

Although this definition has the merit of highlighting the central core of finance function—keeping the business supplied with enough funds to accomplish its objectives—it is generally considered that such a definition is too narrow to be of any use. Finance function is certainly broader than that of funds procurement or supply.

At the other extreme is another definition which considers that finance is concerned with cash, and that since nearly every business transaction involves cash directly or indirectly, finance is concerned with everything that takes place in the conduct of a business. Obviously, such a definition is too broad to be meaningful.

The third approach—more acceptable for the purpose of our discussion—envisages finance function as procurement of funds and their effective utilisation in the business. The financial manager can hardly stop with a decision that the funds can be obtained or even with a decision that the new installation of machinery can best be financed by making a public issue of 9% cumulative preference shares. On the other hand, he has to consider whether the additional profits expected from the new installation

of machinery adequately compensate for the cost and risk involved in the issue of preference shares. It may thus be noted that this approach entails a decision-making after analysing the alternative uses and sources of funds. The financial manager has to play a major role in planning a business concern's need for funds; raising the necessary funds, and then putting them to effective use. In this sense, finance function covers financial planning, forecasting of cash receipts and disbursements, the realising of funds, use and allocation of funds, and financial control. Through budgets and other devices of financial control, the financial manager attempts to bring performance closer to the targets.

✓ **Who takes care of finance function in a business ?** The financial officer in a company is known as controller or treasurer. His responsibilities vary widely from one business unit to another. While it is customary for the treasurer/controller to perform financial functions of some kind, important aspects of financial management are often handled outside his office. Thus, we may find that in one company basic financial decisions are made by the managing director/agent of the company, in another by a committee of the board of directors, in others by the "financial" controller or treasurer.

✓ In the light of this wide diversity of organisational practices, it is not surprising to find that in most of the companies the office of treasurer carries only routine responsibilities connected with finance function—e.g., receipt, disbursement and custody of funds and securities; supervision of debenture and share registrations and transfers; administration of all tax affairs; preparation of confidential payrolls; and the like. These are better classified as administrative functions incidental to finance rather than to financial management. Such incidental functions are important, but they rarely involve basic financial decisions.

✓ The treasurer/controller, whose office is supposed to perform all financial functions, is often limited in his duties to management of working capital which includes activities such as accounting operations, credit and collection, contacts with commercial banks and other suppliers of short-term funds, and preparation of short-term budgets. He often remains an unidentifiable officer within most organisations. Indeed, there is such a wide range of organisational practices in existence that the person or persons who make the basic financial decisions within a company can be located with difficulty.

✓ **Scope of finance function.** As long as finance function is confined to the process of raising funds, it cannot and does not provide answers to questions like: Should a business commit capital funds to a certain purpose? Are the expected returns adequate to compensate the cost and risk attached to additional capital? How does the cost of capital vary with

the mixture of financing methods used ? These questions lie at the very heart of sound financial management. Hence there is need to define the scope of finance function which covers decisions not only for the acquisition of funds but also for their effective use.

In the light of this broader scope, the finance function includes judgments about whether a company should hold, reduce, or increase investment in various assets. These, in turn, require defensible basis to answer three questions :

1. What specific assets should a company acquire ?
2. What total volume of funds should a company commit ?
3. How should the funds required be raised ?

It may be noted that these questions are closely inter-related. Another way of stating the content of these three related questions is as under :

1. How large and how fast a company should grow ?
2. In what specific forms should it hold its assets ?
3. What should be the composition of its liabilities ?

One is likely to get the impression from the preceding survey of the scope of finance function that it is concerned with almost all aspects of business operations. But that is not so. Although it is difficult to set limits to the finance function, a fairly large group of business decisions do not involve changes in the volume of funds to be used. These lie outside the orbit of finance function though they may affect the profitability of the business. These decisions may be thought of as "technical" or non-financial decisions. Some examples of such decisions are :

1. Decision about labour's participation in management.
2. Decision about changes in employment practices.
3. Decision on administrative practices.
4. Change in marketing and advertising techniques that do not involve a change in the annual advertising budget.

Many of these decisions affect the size and timing of future flow of funds, but they do not involve a current change in the volume of funds committed.

Classification and description of finance function. Finance function may be classified into two groups: *executive finance function* and *incidental finance function*. The executive finance function is so termed because it requires administrative skill in planning and execution, and the incidental function is so called because, for the most part, it covers routine work, chiefly clerical, that is necessary to carry into effect financial decisions at the executive level. Some of the basic executive finance functions are given below :

1. *Establishing asset-management policies.* All finance functions are concerned with the control of the cash flows. In order to estimate and arrange for cash requirements of an enterprise, the financial managers must know, among other things, how much cash will be "tied up" in the various kinds of non-cash assets. The determination of asset-management policies includes decisions regarding kinds and coverage of insurance that a company will carry. The formation of sound and consistent asset-management policies is an indispensable pre-requisite to successful financial management. However, the role of financial managers in formulating asset-management policies is not an exclusive one. Marketing executives participate in making decisions involving the carrying of inventories of finished goods, customer credit policy, etc. Production managers, likewise, participate in making decisions concerned with the carrying of inventories of raw materials and factory supplies, the purchase or renting of building, machinery and equipment.

2. *Determining the allocation of net profits.* The typical corporation may be said to have three choices regarding the allocation of net profits after payment of taxes: (a) Pay dividends to the shareholders as a return upon their investment; (b) Make distributions to people other than the shareholders as to employees in profit-sharing plans; and (c) Retain earnings for the expansion of business. As the second alternative is *ordinarily* made on a large range contractual basis or as a matter of fixed policy, the company's continuing free choices in the matter of the use of net profits involve only the other two alternatives, i.e., payment of dividends and the retention of earnings to acquire additional assets.

3. *Estimating and controlling cash flows and requirements.* A prime responsibility of financial management is to see that an adequate supply of cash is on hand at the proper time for smooth flow of operations of the company. Since flow of cash originates in sales and cash requirements are closely related to the volume of sales, the fulfilment of the responsibility of providing cash in the proper amount at the proper time requires forecasting.

The function creates an increasing dilemma. Ideally the financial manager would like to match the inflow of cash to the outflow of cash so that after providing enough cash to meet current obligations, there would be no idle cash balance earning nothing for the company. But the trouble is that cash inflows are not precisely predictable, and seldom offset one another. So the financial manager must keep a cash balance on hand to pay his bills on time. At this point the dilemma sets in. The more he protects his company against risks associated with inability to pay bills on time, the more he loses returns that might have been gained from investment of the idle cash. It is, in essence, the dilemma of liquidity *vs.* profitability.

~ 4. *Deciding upon needs and sources of new outside financing.* The financial managers, on the basis of their forecasts of the volume of operations, may have to plan upon borrowing to supplement cash flowing from these operations. All kinds of borrowing, including borrowing from commercial banks and other financial institutions, and the floatation of debentures is one of the two principal means of outside financing. Another principal method of outside financing is the sale of additional shares. On the basis of the forecasts of the inflow and outflow of cash in the ordinary course of operations, the financial manager should be able to judge rather closely the time when additional funds from outside sources will be needed, how long they will be needed, how best they can be raised, and from what sources they will be repaid.

✓ 5. *Carrying on negotiations for new outside financing.* Finance function does not stop with the decision to undertake outside financing; it extends towards carrying on the negotiations to arrange for it. Short-term financing requirements are often arranged for on a continuing basis, may be through an establishment of credit with commercial banks. Even a continuing arrangement of this kind, however, involves negotiations. Normally lines of credit are "held open" for not more than a year; hence it is necessary to reopen negotiations annually to continue this arrangement. The factor of advance planning assumes greater importance in the matter of long-term financing because negotiations and the completion of arrangements for long-term financing always require much more time than does the working out of arrangements for short-term financing.

✓ 6. *Checking upon financial performance.* The checking of financial performance in a business deserves much attention in carrying out finance function. It requires retrospective analysis of operating period for the purpose of evaluating the wisdom and efficiency of financial planning. Analysis of what has happened should be of great value in improving the standards, techniques, and procedures of financial control involved in carrying out finance function.

The executive finance functions are interrelated. Therefore, a change in decision with respect to one of the functions is likely to require a change in decision concerning some or all others.

✓ The incidental finance functions are: (a) Supervision of cash receipts and disbursements and the safeguarding of cash balances. (b) Custody and safeguarding of securities, insurance policies, and other valuable papers. (c) Taking care of the mechanical details of financing. (d) Record keeping and reporting. The incidental finance functions are self-explanatory.

Orientation of the finance subject matter. In many writings on the finance subject, the stand-point of the owners of a finance firm has been given an exclusive position. It has been considered that the large

corporate enterprise is operated on behalf of the shareholders, even though ownership is diffused. Recently, there have been more cases of separation of ownership and control. There have also been trends requiring a broader point of view. The business firm represents an institution in the sociological sense. It has a role to play, involving a balancing of the various groups of interests. [The rising in strength of the interest of the consumers, workers and government represent forces against which shareholder interests must be balanced.] There is another view which helps that relationships with consumers, employees, suppliers and the general public have long been recognised by business managers. Only recently the corporate management has considered the need for communicating with shareholders.

In business schools, the professional view-point tends to be the demanding one in the study of business finance. On the other hand, courses in business finance presented in an economics department may have a general economic or social point of view. The behaviour and performances of business firms are the keys to understanding the modern economic society. Hence the subject of business finance is to be studied from the standpoint of its impact on the operation of the economy. The problems of corporate concentration, the separation of ownership and control, the role of government regulations and the emergence of national and international fiscal and financial policies are of crucial importance requiring the major attention from the corporate financial executives. The national fiscal and monetary policies have a great impact on financial decisions. It is, therefore, essential that financial managers get themselves concerned with national, fiscal and monetary policies. [In addition, international trading and financial policies increasingly have an impact on domestic policies. The scope of the finance function and the finance subject matter is thus broadened to incorporate the entire field of economics and management.]

In the traditional course on corporation finance, undue emphasis was laid on matters like promotion, merger, consolidation, recapitalisation and reorganisation which were infrequent influences during the life cycle of a company. It resulted in leaving a limited room for the problems of a normal going company and the treatment of subject was too closely around certain specific happenings. This dissatisfaction with emphasis on the episodic outsider point of view gave rise to a new stream of thinking in business finance. [Prof. Hunt (Harvard Business School) coined the phrase "on the outside looking in" and contrasted it to the point of view of the financial manager concerned with the internal operation of the business firm, i.e., the insider looking out.] A survey was conducted by Prof. Weston (University of California) on the activities of financial managers and he found that most of the time of financial executives was spent on various aspects of working capital management, reflecting their day-to-day respon-

sibilities. However, the financial executives assigned greatest importance to the episodic decisions such as long-term contracts for financing, mergers and capital budgets. In recent years a new approach has emerged which combines both views. In long range planning, control functions, and financial analysis of alternative product market decisions, the finance function covers both the individual episodes and provides a framework for the day-to-day decisions involved in working capital management. Thus, working capital management *vs.* individual financial episodes are two sides of the same coin. |

✓ **The insider versus the outsider view.** Should the study of finance take the insider's or the outsider's point of view? Phrased in another way, should a finance book emphasise the managerial point of view, or should it be aimed at the person who is interested in business finance as a customer, a lender, a stockholder, or a voter?

✓ These two points of view are not incompatible. The financial manager, whose preoccupation is with the internal administration of the firm, must still take into account the reaction of outsiders to his operations.

✓ **Small-firm versus large-firm financing.** Similarly, the issue of the large firm versus the small firm as the appropriate focus of attention in finance courses is a false one. Principles of business finance are just as applicable to the small firm as to the large. -

✓ **Goal of financial management.** The objective of a company is to maximise its value to its shareholders. Value is represented by market price of the ordinary shares of the company over the long run, which is a reflection of the company's investment and financing decisions. The long run means a period long enough so that a normalised market price can be worked out. Management can make decisions on the basis of day-to-day fluctuations in the market price in order to make decisions that will raise the market price of the shares over the short run at the expense of the long run. For instance, a company may cut its research and development expense significantly in order to increase current earnings. This action may result in an increase in market price per share temporarily but future profits of the company are likely to suffer without sufficient research and development and the result will be a drop in market price in the long-run.

Often, maximisation of profits is regarded as the objective of a business enterprise. But it does not specify the timing of expected returns. Few shareholders may think favourably of a project that promises its first return after 30 years, no matter how large this return. In other words, we have to take into account the time pattern of returns. Secondly, the objective of maximising profits does not consider the risk or uncertainty of prospective earnings stream. Some investment projects are far more risky

than others. As a result, the prospective stream of earnings would be more uncertain if these projects were undertaken. Further, this objective of profit maximisation does not allow for the effect of dividend policy on the market price of the share. If the objective were only to maximise earnings per share the firm would never pay a dividend. To the extent that the payment of dividends can affect the value of the share, the maximisation of earnings per share will not be a satisfactory objective by itself. For these reasons, an objective of maximising earnings per share may not be the same as maximising market price per share.

The market price of the corporate share represents the main centre. It takes into account present and prospective earnings per share, the timing and risk of these earnings, the dividend policy of the company, and any other factor that may be having a bearing upon the market price of the share. Thus the market price serves as a performance index of the company's progress. It indicates how well management is doing. Management is under a continuous appraisal.

Profit maximisation vs. wealth maximisation. There is an interesting controversy regarding the goals of financial decision making, *i.e.*, should the goal of financial decision making be profit maximisation or wealth maximisation. Certain objections have been raised against profit maximisation as the goal of the business enterprise. *First*, it relates to the problem of uncertainty as future cannot be known well enough to express the probability of possible return. It is not possible to maximise what cannot be known. *Secondly*, most decisions involve a balancing between expected return and risk. Opportunities promising the possibility of higher expected yields are associated with greater risk to recognise such a balancing and wealth maximisation is brought into the analysis. If greater expected returns are associated with higher risks, a higher capitalisation rate should be applied to opportunities that involve greater risk. The combination of expected returns with risk variations and related capitalisation rate cannot be considered in the concept of profit maximisation. *Thirdly*, the decision maker may not have enough confidence in the estimates of future returns so that he does not attempt further to maximise. It is argued that the firm's goals cannot be to maximise profits but to attain a certain level or rate of profit, holding a certain share of the market or a certain level of sales. Firms try to 'satisfice' rather than to maximise. The satisficing goal is appropriate for a behavioural theory of the firm and is perfectly manageable. Satisficing is primarily a short-run search strategy and relates to the cost of search. If information and search costs are low, additional efforts will be made to maximise. Where information and search costs are high, additional effort to seek to maximise promises little additional net gains. So the decision maker may be said to satisfice. Thus,

when information and search costs are taken into account, the differences between satisficing and maximising may be insignificant or non-existent. Lastly, the objective to profit maximisation indicates that it is too narrowly centred. Such maximisation criteria fail to take into consideration the interests of government, workers and other persons in the enterprise.

Prof. Solomon (Stanford University) has handled this issue logically. He argues that it is useful to distinguish between profits and profitability. Maximisation of profit in the sense of maximising the wealth accruing to shareholders is clearly an unreal motive. On the other hand, profitability maximisation in the sense of using resources to yield economic values higher than the joint values of inputs required is a useful goal. The goal of profitability achieved in terms of greater outputs than input values involves a different set of considerations. Thus the proper goal of financial management is wealth maximisation. Even if management has other motives, such as maximising sales or size, growth or market share, or their own survival or peace of mind, these operating goals do not necessarily conflict with operating goal of wealth maximisation. Prof. Solomon has made a good case for the thesis that wealth maximisation also maximises the achievement of these other objectives. He concludes that maximisation of wealth provides a useful and meaningful objective as basic guideline by which financial decisions should be evaluated.

✓ Recent developments in economics and finance have placed the financial manager in a central position in the business firm. The developments of financial management over the past two decades have prepared the financial executive better than any other officer to provide the chief corporate executive with the planning and control tools he needs. Since most business activities involve the use of funds, financial management must have recognised involvement in all the other activities which take place. Prof. Solomon elaborates on the nature of the business function as follows: "Financial management is properly viewed as an integral part of overall management rather than as a staff speciality concerned with fund raising operations. In this broader view, the central issue of financial policy is the wise use of funds and the central process involved is a rational matching of the advantage of potential uses against the cost of alternative potential sources so as to achieve the broad financial goals which an enterprise sets for itself. In addition to raising funds, financial management is directly concerned with production, marketing and other functions within an enterprise whenever decisions are made about the acquisition or distribution of assets."

Finance must consider a broad range of business decisions for their cash flow implications. In addition, financial managers are involved in

evaluation of resource allocation choices. Finance is, therefore, concerned with the following wide range of areas: size of the firm, rate of growth, asset mix, product mix, project evaluation, financial analysis, financing mix, fixed *versus* variable costs, make or buy decisions and the like.)

We feel that the field of finance is a subset of behavioural sciences, and derives its analytical foundations from the economic theory of the firm. The field of finance is enriched by the behavioural characteristics of all market participants—management, shareholders, lenders, and consumers. Similarly, it is constrained by the institutional and legal environmental factors of government, markets, and so on. We are interested in the efforts of all participants to optimize their own welfare through the pursuance of specific goals, within the accepted modes of behaviour.

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2

Sources of Financial Information

There is a great variety of sources of financial information about the stock and money markets, industries and individual companies. The financial manager will find these sources of data useful in making more informed decisions regarding new financing, temporary borrowing, inventory management and capital budgeting in general. It is not intended to present here an exhaustive treatment of all possible sources to which the financial manager or analyst may turn. Rather, this chapter will introduce the form, extent and character of the information published daily, weekly, monthly or quarterly in the most important media and reference works. Three main groupings of information sources are discussed :

1. Daily newspapers.
2. Magazines in the field of Finance and Banking.
3. (a) Financial Services.
(b) Company and supplementary data.

1. Daily newspapers

The two most comprehensive and detailed daily reports of financial information, quotations and news are found in *The Economic Times* and *The Financial Express*. These newspapers print detailed information on the transactions on various stock exchanges and commodity markets, statistics and news on economics and business, feature articles on the trend and development of business, company earnings, reports, dividend news, etc. The extent and coverage of financial news in other major daily newspapers across India are usually quite limited.

While most of the news, reports and analyses of business conditions reported in the above newspapers are in the form of tables or articles, the reporting of closing prices and fluctuations in forward and spot (cash-list) markets on the stock exchanges is done in a special form which warrants some discussion.

Currently there are eight organised stock exchanges in India. Closing prices of various shares and stocks and their fluctuations on these stock exchanges are reported in somewhat different manners in *The Economic Times* and *The Financial Express*, the former carrying more comprehensive coverage than the latter. The following illustration, taken from *The Economic Times* (September 23, 1964) demonstrates the method of reporting stock exchange fluctuations and some common abbreviations used for this purpose :

Bombay Stock Exchange
Wednesday, September 23, 1964

Forward List :

Textiles

(100) Central India (99) 98.50, 99

(50) Elphinston (101) 98

Cash List:

Textiles:

(40) Mafatlal (F 100) (234) 233, 236

Electric:

(10) Bassein (8.50 N)

Unless otherwise designated, the quotations refer to ordinary shares of a company. Preference shares and Debentures are shown separately. Deferred shares are marked by "Defd." after the name of the company. The previous closing prices are given in brackets after the names and the paid-up values of shares, in brackets before the names. Last closing prices appear at the end. If two or more unbracketed quotations appear at the end, the first represents opening price of the issue which may differ from the previous closing price and the other quotations reflect the fluctuations in the prices (highest and lowest) of the security with the last quotation representing the closing price of the issue. (F 100) means that fully paid up value of the scrip is 100. It is shown where the scrip is partly paid up.

There are many other symbols and abbreviations which appear in such reports. For example, "ex" stands for (excluding) dividend and "cd" means cum-dividend. A comprehensive list of all abbreviations used by *The Economic Times* for reporting stock exchange fluctuations and closing prices is given below:

con:	convertible
Defd:	Deferred
xd:	ex (excluding) dividend
cd:	cum (with) dividend
xr:	ex (excluding) right
sl:	small lot

sol :	small odd lot
ol :	odd lot
N :	Nominal
t :	taxable
r :	redeemable
(a) :	yield calculated after adjusting for right or bonus issue
F :	Face value
FP :	Fully paid
a :	Not quoted after the latest call
C.T. :	Cross Transaction
f :	flat yield
N.T. :	No trading

In addition to daily reporting of fluctuations and closing prices on various stock exchanges, *The Economic Times* also reports on every Monday the closing prices, dividends and/or gross yield on industrial and government securities and 'highs' and 'lows' of these securities with respect to current calendar year. An illustration of such reports is given below :

The Economic Times, Monday, May 13, 1968
Bombay

1968		Closing price	Stock	Dividend per cent	Yield per cent
High	Low				
Forward List :					
Iron and Steel					
16.80	14.52	16.04	Indian Iron	8.50	5.30
Cash List:					
Food Products					
22.52	18.00	22.64	Hind. Lever	14.00	6.18

Taking the first two items of the first quotation, we learn that during 1968 prices paid on the Bombay Stock Exchange for that particular security (Indian Iron) ranged from a high of Rs 16.80 to a low of Rs 14.52. The high and low figures are brought up to the last working day of the week. Similarly, yields reported here are also calculated on the basis of closing quotations on the last working day of the week. Dividends and yields are given on a gross basis, *i.e.*, without deducting income-tax. When the quotation of a share is "cd", *i.e.*, cum-dividend, yields are calculated after deducting net dividend from the cum-dividend prices.

Volume of securities traded is a genuine indicator of the activities of the stock markets. But unfortunately none of the financial newspapers referred to earlier has found it possible to report the total volume of securities traded daily on various stock exchanges. Of course, information is

available in *The Economic Times* regarding the number and value of shares marked for delivery on days fixed for clearing.

An important help in interpreting the behaviour of the stock market as a whole are various indexes and averages. The most important of these are the daily Economic Times Index of Ordinary Share Prices,¹ the weekly Reserve Bank of India Index Numbers of Security Prices,² and the daily Financial Express All-India Equity Index with 1967-68 as base covering 100 selected scrips.

The movements of the averages and indexes are watched and followed very closely by analysts, investors and financial managers alike. On the basis of these movements, they can evaluate the strength ("bullishness") or weakness ("bearishness") of the stock market in relation to plans for investing in or selling of securities. The stock market averages and indexes also play an important part in the timing of floatation of new issues to raise capital for a company. Although the indexes and averages are thus of great help to investors and financial managers, their usefulness is restricted by the limitations similar to those of averages in general.

Some newspapers (e.g., *The Economic Times*) also carry quotations of foreign stock exchanges, such as the London or New York exchanges. These listings are made in the currency of the foreign country and are likely to be rather selective groupings of representative stocks.

The following other financial data are also covered in the newspapers.

(a) Most financial pages contain summaries of the trading in commodity markets. Fibre and fibre goods, jute and jute goods, oils and oilseeds, foodgrains, gur and sugar, dry fruits, spices, etc., are the items generally traded in the commodity markets. In the absence of any specific restrictions, trading is done both on a "spot" (or cash) basis for immediate delivery and on a "futures" basis for delivery at a specified future date. Spot and future quotations are made in varying terms (e.g., 100 bags, 10 lbs., 1.00 q.) depending on the commodity involved. Quotations usually show opening and closing transactions and, in the case of futures, also highs and lows for the trading day. Futures prices are quoted by the month of delivery, so that on a given day there may be several quotations for each commodity at each exchange for different months. The financial manager of a firm utilising one or more commodities traded will closely follow the trends and developments in the trading and prices of the same. He may engage in trading activities to "hedge" against unforeseen adverse trends in the commodities markets by using the device of "futures". In very simple terms, hedging is to make a commitment in commodities for future

¹ Published daily by *The Economic Times*. See Exhibit 1 for details.

² Published monthly by *The Reserve Bank of India* in its monthly *Bulletins*. See Exhibit 2 for more details.

delivery, in order to avoid risk of price change in such commodities entering into the cost of goods already contracted for manufacture and sale. Any price changes in the period between the purchase and sale will be cushioned or even eliminated for the hedging firm, since the loss on one contract is likely to be offset by the gain on the other.

(b) Foreign exchange is usually quoted in terms of selling prices for bank transfers in India for payment abroad and buying prices for bank transfers in the foreign country for payment in India.

(c) Other business and economic indicators are often presented in the financial newspapers such as the index of industrial production, the index of agricultural production, consumers price indexes, etc. *The Economic Times* daily reports All-India Wholesale Commodity Price Index and on every Sunday presents selected economic indicators. These overall indicators are supplemented by individual company earnings reports, dividend declarations, announcement of new financing, and other company news.

2. Magazines in the field of finance and banking

Among the weekly publications, *Commerce* and *Capital* are most comprehensive sources of stock and share quotations and financial, banking, industrial, commodity, and economic developments. Both these weeklies provide important company news including verbatim chairmen's speeches. With its weekly review of India's financial, commercial and industrial progress, *Commerce* provides, *inter alia*, statistical information on exchange rates, position of scheduled banks, index numbers of security prices, index numbers of wholesale prices, consumer price index numbers for working class, import trade of India, industrial production, iron and steel production, Indian jute statistics, and a comprehensive picture of stock and share quotations. *Indian Finance* covers financial, banking and industrial developments in India. *Business Week* (U.S.) carries an extensive coverage of topics on business or developments of interest to business including articles on individual companies or industries, and it presents weekly index numbers on production, prices and other economic indicators.

The Company Law Journal, *Financial Analysts Journal* (U.S.) and *Harvard Business Review* (U.S.) are the three bi-monthly magazines that deserve special attention. Legal provisions are an ever-increasingly important factor in all decisions regarding company finance. *The Company Law Journal* throws light on the implications of all Acts and amendments therein that affect the promotion, conduct, liquidation, etc., of a company. *Financial Analysts Journal* comes out every fortnight with analytical articles in the field of security analysis as well as reports on individual companies from

an investor's point of view. *Harvard Business Review* presents scholarly articles on a wide range of topics covering the fields of investment, business finance, money and credit, marketing, production, personnel selection and management, etc.

Some of the noteworthy monthly publications are *The Chartered Accountant*, *Dun's Review* (U.S.), *Fortune* (U.S.), and the *Reserve Bank of India Bulletin*. *The Chartered Accountant* carries articles of interest to secretaries, controllers and financial managers. *Dun's Review* presents trade indexes, failure data, 14 standard financial ratios for various industries, and articles about industry and commerce. *Fortune* makes an interesting reading for an amateur as well as a serious student of business finance and economics. *The Reserve Bank of India Bulletin* carries an extensive section on current statistics on selected economic indicators, currency and finance, public finance, production and stocks, prices, trade and balance of payments etc. In addition, it also presents monthly financial and economic reviews together with special articles and news and notes about developments in the area of money and banking, and private and public finance.

Then, there are quarterlies like *Indian Economic Journal*, *Journal of Business* (the Graduate School of Business of the University of Chicago, U.S.A.) and *Journal of Finance* (The Journal of the American Finance Association, U.S.A.) which publish scholarly articles on money and credit, international finance, business finance and current economic problems. *The American Economic Review*, the Journal of the American Economic Association (U.S.A.), comes out five times a year with analytical (and highly sophisticated) articles about some basic concepts of economics and business finance as well as recent economic and business problems.

Too numerous to deal with individually in this chapter are the many specialised periodicals published by banking, industrial and trade associations and groups, several Government of India surveys and publications, and the reviews and journals of the academic world. One need not read on any systematic basis all or even most of these and other magazines referred to earlier. Rather, it is important that one is aware of their existence and of what they can be expected to offer. A selected list of the periodicals in the field of finance is given in Exhibit 3.

3 (a). Financial Services

Other important financial services providing financial data about individual companies and financial entities as well as summary statistics about selected industries are :

- (1) Kothari's Economic Guide and Investor's Handbook of India.
- (2) Investor's Guide (organised by C. J. Dalal & Co.).

- (3) Stock Exchange Year Books.
- (4) Investor's Encyclopaedia.
- (5) Investor's Year Book.

These manuals present information about directors and/or managing agents, objects and activities, capital, transfer fees and closure and transfer books, working of the year, security prices, and comparative financial statements for a very large number of public limited companies. In addition, they also contain other information of general interest to investors, for example, major figures of current five-year plan, central budget, company law, taxation, etc.

3 (b). Company and supplementary data

Annual reports (together with Chairmen's speeches) furnished by many companies are an important direct source of financial information. Also, announcements and prospectuses (detailed proposals) are issued by companies when new securities are to be floated, and a great deal of information can be obtained from those statements about the history of the company, its owners, its working, products, facilities, etc. Some of the trade associations and groups publish yearly industry data and statistics which are often found in special issues of the trade magazines and journals.

Moody's Manuals and Surveys. The annual manuals appear in five separate volumes: Industrials; Banks; Insurance, Real Estate, Investment Trusts; Public Utilities, Railroads; and Government and Municipals. These manuals provide detailed up-to-date histories, financial statements, security prices, and dividend records of a large number of concerns, comprising most of the publicly held corporations. Semi-weekly supplements are issued to keep the information current. Moody's also publishes weekly stock and bond surveys which analyse market and industry conditions.

Standard and Poor's Manual and Surveys. Standard Corporation Records contain loose-leaf current financial information about a wide variety of companies which is kept up-to-date through daily supplements. Its Industry Surveys are compilations of group data on a number of individual groups of industries. Other services by Standard and Poor's include weekly forecasts of the securities markets, securities statistics, several information services on the bond markets, and a Monthly Earnings and Stock Rating Guide.

The Stock Exchange Official Directory, Bombay. This publication in five volumes was started by Bombay Stock Exchange in 1966. The official Directory makes an analysis of published financial statements of almost all the companies whose shares are listed on the recognised stock exchanges, representing in the aggregate about 85 per cent of the total paid-up capital

of non-government public limited companies incorporated in India. It covers important unlisted public limited companies as well as several prominent Government companies and statutory corporations.

The annual reports including balance sheet and profit and loss statements published by the companies every year constitute the most important source of operating and statistical data incorporated in the Directory for judging their working results and financial position. The Directory provides the following :

- (a) Comparative and common-size financial statements for ten years.
- (b) Trend percentages for selected years.
- (c) Ratio analysis of items selected from financial statements.
- (d) Equity share data for ten years.
- (e) Graphs and charts of equity prices, net sales, net profit, equity dividend, etc.
- (f) Supplementary background material compiled from the annual reports.
- (g) Tabular history of the capital structure of each company, in most cases from its inception.

The Official Directory is a successful attempt to fill-up the gap that existed for having systematically analysed operating results, financial position and progress of the Indian companies. Further, the first volume of the Directory helps in making a quick reference to matters of general economic interest, the provisions, principles and procedures of industrial licensing, new capital issues, regulatory legislation, stock markets in India, etc.

Exhibit 1

ECONOMIC TIMES (E. T.) INDEX OF ORDINARY SHARE PRICES

General. The E. T. index of ordinary share prices is based on the quotations of 51¹ prominent equities actively traded on the five stock exchanges at Ahmedabad, Bombay, Calcutta, Delhi and Madras. Unlike the broad-based and hence relatively insensitive official general purpose series of index numbers issued by the Reserve Bank of India, the E. T. index aims at being a sensitive series which clearly portrays the day-to-day and short-term market trends without any time-lag.

Selection of scrips. The basic objective of the selection of scrips being sensitiveness as determined by the frequency and the magnitude of price changes, only marginal allowances have been made to meet other considerations like allocation of weightage. However, "self-weighting" has crept

¹ Out of these 51 actively traded scrips, 40 figure in the forward list and the rest in the cash list.

in as the relative importance of each industry has been kept in mind while deciding the number of scrips from each industry. In selection of scrips, due consideration has also been given to the adequate representation for the various controlling industrial houses, the five stock exchanges as also the size of the units concerned.

Given below is the industry-wise list of the scrips selected from different stock exchanges which are indicated by the first letter of each centre in brackets :

- I. (i) Cotton Textiles : 1. Bombay Dyeing (B); 2. Century (B); 3. Madura (M); 4. Ambica (A); 5. Calico (A); 6. New Shorrock (A); 7. Modi Spinning (D).
- (ii) Jute Textiles : 1. Howrah Jute (C); 2. New Central (C).
- (iii) Other Textiles : 1. National Rayon (B); 2. Bangalore Wool-len (M).
- II. Iron and Steel : 1. Tata Iron (B); 2. Indian Iron (C).
- III. Engineering : 1. Telco (B); 2. Voltas (B); 3. Texmaco (C); 4. Indian Cables (C); 5. Hindustan Motors (D).
- IV. Sugar : 1. Belapur (B); 2. Walchandnagar (B); 3. Deccan (M).
- V. Paper : 1. Orient Paper (C); 2. Shree Gopal Paper (C).
- VI. Cement : 1. A.C.C. (B); 2. India Cement (M); 3. Jaipur Ud-yog (C);
- VII. Electricity : 1. Ahmedabad Electricity (B); 2. Tata Power (B).
- VIII. Plantations : 1. Bishnauth Tea (C); 2. Jay Shree Tea (C); 3. Hasimara Tea (C); 4. Periakaramalai (M); 5. Bombay Burmah (B); 6. Blue Mountain (M); 7. Ouchterlong (M).
- IX. Other Industries : 1. Central Bank (B); 2. New India Assurance (B); 3. Tata Chemicals (B); 4. Scindia (B); 5. Premier Construction (B); 6. Wimco (B); 7. Burrakur Coal (C); 8. Indian Copper (C); 9. Indian Aluminium (C); 10. Rohtas Industries (C); 11. Dunlop Rubber (C); 12. Union Carbide (C); 13. Atul (A); 14. Anil Starch (A); 15. Delhi Cloth (D); 16. Ganesh Flour Mills (D).

The number of shares selected from each centre are :

Bombay	...	...	18
Calcutta	...	...	17
Madras	...	...	7
Ahmedabad	...	...	5
Delhi	...	...	4
Total	...	...	<hr/>51

Industry and regional indices. Besides providing the index numbers for all industries, together, the E. T. index also presents indices for the following important industries which are included in the computation of the general index: (1) Cotton Textiles, (2) Jute Textiles, (3) Iron and Steel, (4) Engineering, (5) Sugar, (6) Paper, (7) Cement, (8) Electricity, and (9) Plantations. Similarly provided are the regional indices compiled in respect of all the shares selected from each stock exchange, though regional indices for individual industries are not given as the number of shares selected from each region in respect of individual industries is not adequate for this purpose.

How is the index computed? Quotations of ordinary share prices are properly adjusted for computing the index. For example, when bonus shares are issued, the base period quotation is adjusted by dividing it by the factor $(1+x)$ when x is the number of shares and/or the fraction of a share issued against one share. Since the trends portrayed by an index number with a remote base period tend to be inaccurate, particularly because of the hectic fluctuations in share prices during the last five years, it is found necessary to select a relatively stable recent year of 1959-60 as the base period for the purpose of this index. In order to allow comparison with the other common economic indicators compiled on a "financial year" basis, a "financial year" period has been selected for the base of the E. T. index in preference to the calendar year. The base period price for each share has been arrived at by working out an arithmetic average of daily official closing quotations during that period. The latest quotation or a scrip is expressed as a percentage of the base period quotation and the price relatives thus obtained for the scrip included under each industry are averaged to obtain the index for that industry. The general index is *not* compiled from the index numbers of individual industries, but it is obtained by taking the simple (unweighted) arithmetic average of all the 51 price relatives. Similarly, the regional indices are computed by taking the simple arithmetic average of the price relatives of all the shares selected from each region.

Although relatively more sensitive simple arithmetic average has been preferred to the geometric average for the purpose of this index, the chance of the index over-amplifying the fluctuations is small particularly because (i) an adequately large number of scrips is taken and (ii) the price relatives are not likely to show large dispersion as the base period selected is not very remote. When the Index first appeared in 1961, it was decided that in order to further reduce the disadvantages of using the arithmetic mean, the index should be rebased at the end of each year, thus not allowing the growth stocks to exert undue influence on the trend of the series. This method is also expected to allow for inclusion or exclusion of shares

in future in case some scrips turn active or some relapse into inactivity. However, neither has the index been rebased every year nor have the scrips selected been different during any period so far.

The Economic Times series of index numbers of ordinary shares is now being revised (*The Economic Times*, October 20, 1972) using 1969-70 as the base year instead of the base year 1959-60 for the old series. This change became necessary as a number of new securities entered the market and some of the old ones ceased to be sensitive as far as the capital market was concerned. There had also been a change in the relative importance of different companies due to their diversified activities with the result that a change had to be brought about in the classification of some units. The emergence of new capital-intensive industries like petrochemicals, fertilizers, chemicals, tyres, etc. in the last decade also necessitated the regrouping of industrial groups. Another important factor emphasising the need for change was the remoteness of the base year of 1959-60.

Industrial Classification of the Scrips in 'The Economic Times'
Series of Index Numbers of Ordinary Share Prices

Revised series (Base 1969-70 = 100)		Old series (Base 1959-60 = 100)	
1. Cotton textiles	(9)	1. Cotton textiles	(7)
2. Jute textiles	(2)	2. Jute textiles	(2)
3. Man-made fibres	(5)	3. Other textiles	(2)
4. Iron and Steel	(2)	4. Iron and Steel	(2)
5. Non-ferrous metals	(2)	5. Engineering	(5)
6. Engineering	(9)	6. Sugar	(3)
7. Fertilizers	(2)	7. Paper	(2)
8. Chemicals	(8)	8. Cement	(3)
9. Sugar	(3)	9. Electricity	(2)
10. Paper	(2)	10. Plantations	(7)
11. Cement	(3)	11. Miscellaneous (representing chemicals, rubber goods, bank- ing, insurance, coal and other misc. industries)	(16)
12. Rubber goods	(2)		
13. Plantations	(3)		
14. Others (representing electricity, vegetable oil & other industries)	(9)		
Total	(61)	Total	(51)

The number of shares selected from each centre in the new series are :

Bombay	23
Calcutta	21
Madras	7
Ahmedabad	6
Delhi	4
	<u>61</u>

The new series has covered 61 scrips. Of the 61 scrips in the new series, 38 were in the old series also. For the selection of scrips the first and foremost criterion has been their sensitiveness, studied on the basis of frequency of price changes as also the magnitude of price variation. Some of the other factors which have been kept in view in choosing the scrips are adequate representation for different industries, representation to the five major stock exchanges, representation to the size of the units, and the trend in dividend payments.

The revised series is compiled for 14 major industrial groups, as against for 11 groups in the earlier series. The above table shows the industrial groups covered in the new series as against the old series.

Exhibit 2

RESERVE BANK OF INDIA INDEX NUMBERS OF SECURITY PRICES : (1970-71=100)

The Reserve Bank of India first published the official series of Index Numbers of Security Prices with the base calendar year 1938=100 in October 1949. This was subsequently revised in August 1953 with the base shifted to 1949-50=100; later in June 1958 the base was shifted to 1952-53=100 and again in October 1965 to 1961-62=100. The present series has now been revised for the fourth time with the base shifted to the financial year 1970-71=100 and the earlier series has been discontinued from December 1973. The main features of the latest series are given below :

Coverage. The new series cover 606 scrips which were quoted as on March 31, 1971 under the four categories of securities, viz., (a) Government and semi-Government securities; (b) Debentures of joint stock companies; (c) Preference shares; and (d) Ordinary shares. The number of scrips selected under the different groups is as follows :— Government and semi-Government securities : 68; Debentures : 37; Preference shares : 145; and Ordinary shares : 356.

Selection of centres. The stock exchanges at Bombay, Calcutta, Madras, Ahmedabad and Delhi have been considered for the new series and for each of them a separate regional series is compiled (Table 1).

It may be noted that for Delhi centre, no Government and semi-Government securities or debentures of joint stock companies have been included.

Choice of the base year. In selecting the base year, relative stability in share prices, comparative all-round economic stability and closeness to the current period have been the main criteria taken into consideration. The financial year 1970-71 was a comparatively stable year among the recent years.

Table 1
Number of Securities Selected

	Bombay	Calcutta	Madras	Ahmedabad	Delhi	All-India
Government & Semi-Government Securities	36	31	29	—	—	68
Debentures of Joint Stock Cos.	19	11	10	—	—	37
Preference Shares	39	49	46	15	17	145
Ordinary Shares	136	126	84	29	39	356
Total	230	217	169	44	56	606

Classification of securities. The grouping of securities in the new series is particularly on the lines of the classification adopted for the study on company finances undertaken by the RBI and is based on Standard Industrial Classification followed by the Government of India.

The revised classification in respect of debentures of joint stock companies, preference and ordinary shares, takes into account all the changes that have taken place in the number, composition and line of activity of companies since last revision.

In the new series, there are three main groups under ordinary shares, *viz.*, (1) agriculture and allied activities consisting of two sub-groups; (2) processing and manufacturing consisting of three sub-groups, *viz.*, (a) food stuffs, textiles, etc., (b) metals, chemicals and products thereof, (c) other processing and manufacturing; and (3) other industries consisting of five sub-groups.

Selection of sample. In the case of debentures of joint stock companies the main criteria for selection was the size of the market value of outstandings as at the end of base year. In all the above categories of securities, very short-dated loans were not considered for selection in order to avoid frequent substitution.

The selection of preference shares has been done taking into consideration the activity of the preference scrip as revealed by the number of price changes in the base period, and the market value of its share capital so that the sample scrips accounted for more than fifty per cent of the total market value in each industrial group.

As regards ordinary shares, the selection of sample scrips was done by examining the size of the market value of the share capital of the company, and activity of the scrip as indicated by the number of price changes during the base year. Care has been taken to give due representation to

different size groups of the market values of the scrips, i.e., the small and big companies; and also to ensure that the sample scrips in any industrial group cover at least 50 per cent of the market value of the corresponding sub-group in the population.

Weights. For Government and semi-Government securities, weights are proportional to the amounts outstanding as on 31st March, 1971. In case of debentures, preference shares and variable dividend industrial securities weights are proportional to the average market value of outstandings/share capital of all companies belonging to the group/sub-group and quoted on the respective Stock Exchanges on 31st March, 1971. The average market value is worked out by multiplying the number of debentures/shares by the average of 12 mid-month price quotations during the base year. In respect of scrips selected at more than one centre suitable adjustments have been made in the all-India weights to avoid double counting.

Method of construction. The weekly price of each scrip is obtained by averaging the daily closing quotations. Price relative for a scrip during a particular week is obtained by dividing the weekly average price by the corresponding average price for the immediately preceding week. For the first week, the price relatives are based on the base year average prices. The unweighted economic average of the price relatives of the scrips included in the sub-group at each centre is the link relative for the sub-group at that centre. These link relatives are then forged into a chain by serial multiplication to get the sub-group index for the centre.

The regional group and main group indices are obtained by taking the weighted arithmetic averages of the sub-group indices of the region. The all-India sub-group indices are the weighted arithmetic averages of the regional sub-group indices and the all-India group and main group indices are the weighted arithmetic averages of the all-India sub-group indices.

Financial Express Equity Index is published daily in the following form :

Exhibit 3

F.E. All-India Equity Index (1967-68=100) New Series

December 6, 1976		222.18
December 4, 1976		222.42
Day's Change		—0.24
December 31, 1976		223.25
December 1, 1976		224.52
November 30, 1976		223.43
November 29, 1976		224.59
November 27, 1976		224.75
Last Week	High	224.59
	Low	222.42
1975	High	195.57
	Low	165.39
1976	High	238.53
	Low	192.46

In addition, there is a weekly analysis of F.E. Equity Index industry-wise.

Exhibit 4

LIST OF IMPORTANT PERIODICALS IN THE FIELD OF FINANCE

Dailies

1. Economic Times.
2. Financial Express.
3. Business Standard
4. Asian Wall Street Journal

Weeklies

1. Business Week.
2. Capital.
3. Commerce.
4. Indian Finance.
5. Economic and Political Weekly.
6. Business Environment.

7. Eastern Economist.
8. Southern Economist.

Bi-Monthlies

1. Bank of India Bulletin.
2. Company Law Journal.
3. Financial Analysts Journal.
4. Harvard Business Review.
5. Journal of the Institute of Bankers.
6. Company News and Notes (Department of Company Affairs, Government of India).

Monthlies

1. Advanced Management Office Executive.
2. Banker, New Delhi.
3. Bankers' Magazine.
4. Bankers' Monthly.
5. Banking.
6. Bombay Chambers of Commerce and Industry Bulletin.
7. Business Periodicals Index.
8. Chartered Accountant, Delhi.
9. Credit and Financial Management.
10. Dun's Review.
11. Financial Executive.
12. Fortune.
13. International Financial Statistics.
14. Investment Dealers Digest.
15. Journal of Industry and Trade.
16. Lok Udyog.
17. Manager: Journal of the British Institute of Management.
18. Monthly Blue Book on Joint Stock Companies.
19. Reserve Bank of India Bulletin.
20. Taxation.
21. The Controller.
22. The Economic Scene.

Five Times a Year

1. American Economic Review: Journal of the American Economic Association.

Quarterlies

1. Academy of Management Journal.
2. Finance and Trade Review.

3. Indian Industries.
4. Indian Economic Journal.
5. Journal of Business : the Graduate School of Business of the University of Chicago.
6. Journal of Finance : The Journal of the American Economic Association.
7. Indian Journal of Commerce.

Yearlies

1. Reserve Bank of India Annual Report.
2. Reserve Bank of India Report on the Trend and Progress of Banking in India.
3. Reserve Bank of India Report on Currency and Finance.
4. Industry Guidelines.

Financial Services

1. The Stock Exchange Official Directory, Bombay.
2. Moody's Manuals and Surveys.
3. Standard and Poor's Manuals and Surveys.
4. Kothari's Economic Guide and Investors' Handbook of India.
5. Investor's Encyclopaedia.
6. Investor's Year Book.
7. Investor's Guide.
8. Stock Exchange Year Books.

3

Corporate Planning and Financial Management

Corporate planning is required to help assure the survival and growth of a company. No matter how important intuition and experience of corporate management may be, business decisions and actions have to be rational. The major contribution of corporate planning is to provide and sharpen this rationality. The speed and complexity of our environment make it impossible to foretell the future. "Planning is not master-minding the future. Any attempt to do so is foolish. Human beings can neither predict nor control the future." For this reason, management have to clarify their objectives and determine what actions must be taken, when, by whom and at what cost to achieve the cherished goals.

Corporate planning deals with the futurity of present decisions in terms of setting goals, developing strategies to achieve them, translating strategies into detailed operational programmes and assuring that plans are carried out. Corporate planning is essential in large organisations to develop a unifying framework in planning and decision-making. Planning is necessary as it is impossible to keep one's head above water if a business is operated by decisions made in a crisis day after day.

The system of corporate planning is still an evolutionary process. A comprehensive corporate planning programme cannot be suddenly started and expected to be an overnight success. Much trial and error learning usually accompanies its development. Even in the United States formal comprehensive corporate planning is comparatively new. The system of corporate planning is still undergoing change in the various organisations which have introduced it.

A distinction should be made between planning and forecasting. Forecasting is an attempt to find the most probable course of events or, at

best, a range of probabilities while planning is deciding what one will do about it. Corporate planning as practised today means different things to different people and has a number of different aspects. It deals with the futurity of present decisions in terms of (i) setting goals and developing strategies to achieve them, and (ii) translating strategies into detailed operational programmes and assuring that the plans are carried out. The former can be called as strategic planning and the latter as programming. The line of demarcation between the two, however, is not always clear.

Often an attempt is made to emphasise the need for corporate planning by separating planning as being either short range or long range or by treating one against the other. This is not a correct approach. Every decision and every action, whether called short range or long range, is immediately both. Some problems of the business may be more directly associated with the work of doing business today, others may be visualised as problems of staying in business over a longer period of time. There is, however, no clear distinction between the problems of doing business and staying in business. Both these classifications deal with the same business. Corporate planning covers both views and deals with formulating a single view of the business that is neither short- nor long-range. This approach sees the business as affecting or being affected by a wide range of influences.

Objectives and goals. The subject of corporate objectives and goals holds a strategic place in the planning process. A distinction between these two terms is necessary. One starts with the objectives and develops goals. Objectives are broad and general statements of purposes. They are always pursued but seldom completely achieved in terms of time. They are the things that continuously motivate management in business. Two such fundamental objectives are : survival and growth. Goals, on the other hand, are the targets or descriptions of things aimed at in a given time span. They may be established for profits, sales, share of the market, employment, assets acquisition, and a number of other measures used in organisational life. The goals can be considered yardsticks by which corporate progress is measured. A change from time to time, for instance, in the goals pertaining to share of the market may change as internal and external developments occur. While goals change over time, basic objectives relatively remain stable. Goals are the key stones in the arch of planning and strategies of programmes are fixed in their achievement. Unfortunately, the theory of business goals is still in rather poor shape today.

Goals and top management. A close relationship should exist between top management and the planning groups in developing and

using goals. This relationship may vary considerably from one firm to another. The goal-setting process is a continuous inter-mixing of staff recommendation, management approval and suggestions, new staff work, new approval and so on. On the basis of close working relationships over time, the management develops a unity in which staff and top management come to know pretty well the corporate objectives and goals.

While the economist's maximisation of profit concept may have some use as a guide to thinking, it suffers from narrowness in its ability to explain and accommodate modifications of executives of the firm. Moreover, it can hardly be applied in practice. The meaning of profit maximisation is ambiguous unless the time participation that controls the firm's policy is carefully specified. The corporate management may find it necessary to concentrate on a few specific goals like return on investment and sales. Even when goals are rather concrete, a great deal of judgment is essential in choosing from alternatives to achieve them. When a variety of goals—qualitative and quantitative—are considered, managerial judgment obviously becomes an essential ingredient in decision-making.

Practical guide to corporate planning. Corporate planning deals with the long-term future of a company within its environment—a combination of two highly complex systems. Therefore, a disciplined approach becomes absolutely essential. Corporate planning, being a process, is carried out in a sequence of steps taken in a certain order. It is essentially a five-step process:¹ (i) determine the company's objectives and decide on a target; (ii) prepare a forecast and estimate the probable error; (iii) calculate the planning gap and decide the task; (iv) determine constraints and means; and (v) design the strategy.

Determination of objective. What is the need of defining the objective of a company? The answer to this question contains the very essence of corporate planning. If a company does not know what it wants, it cannot decide how to get it. Many companies do not know and have to drift through their environment reacting only to stimuli. Some companies have several 'objectives' and sooner or later when a conflict between them develops, they find they have no single overall criterion by which to judge priority. Determination of objectives is not just an academic exercise taking place in a philosophical vacuum. In fact, it has practical consequences of big significance to individual companies and to the economy of a country.

¹ cf. John Argenti, *Corporate Planning*, London: George Allen & Unwin, 1968.

The objective of most of the companies in the private sector is to make profit and it has to be sufficient, after providing for the various constraints, to allow a satisfactory return on the owners' capital. Most of the owners require as good a return on their investment as they can get elsewhere keeping in mind the elements of risk involved in the alternative activities.

The corporate planner has to find out what level of return will satisfy owners and then calculate what profits the company will have to make to give them this return. "Maximise profits" is a meaningless motivation and the traditional return on investment is so flexible a yardstick as to be useless. The discounted cash flow method and the realised yield on investment (discussed in the chapters dealing with Capital Budgeting and Cost of Capital) have been found of great assistance in deciding on a profit target. The corporate planner must, from time to time, reconsider whether the target still reflects the level on which shareholders would be satisfied and whether profit target still allows the company to meet it.

Preparation of forecast. Having obtained the profit target, the corporate planner needs to prepare a profit forecast. This involves a four-stage procedure requiring a thorough study of the company's past performance to identify trends in the four components of profits: selling prices, variable costs, fixed costs and volume. These trends are projected into future and modified, taking into account events and trends expected to occur in the future with a significant bearing on the expected profits.

Calculating the gap. Having determined the company's profit target and forecast the likely profits for each year, the corporate planner should calculate the gap between these two figures. This gap indicates the extra task facing the company over and above the mere continuation of the existing business. It shows how much extra profit has to be earned arising from the decisions and the commitments that will be made over the next few years. The real size of the task ahead is shown by the profit gap calculated so as to avoid an unacceptable profit result.

Identification of constraints. It is important to know what constraints a company has got so that its relationships with its employees, customers, suppliers, competitors and government officials can be defined. Constraints are being increasingly dictated by public opinion, the press, the government, the unions, consumers' organisations and so on. The greater the number of constraints imposed on a company, the fewer are the options available to it for making profits and the more difficult does it become to make a profit at all. A company has to decide which constraints are valid.

If these constraints are not defined, the company's executives may not know how to react to a problem involving moral decisions.

Designing the strategy. Having decided what profit gaps exist, the company should aim to close them and having decided what constraints to apply, it needs to know what strategy will succeed in closing the gaps. There are alternative ways to earn profit: invest capital, overcome obstacles; exploit opportunities, make use of strengths, overcome weaknesses, introduce profit improvement plans, etc. The corporate planner has to work systematically through each of these to determine what chance there is of closing profit gaps by applying these approaches, first, in the area of business in which the company is currently engaged, and then, in those areas of business which the company may consider to enter. The corporate planner has to make a study of the feasibility of closing the gaps and he should eliminate those means which do not appear significant or which are contrary to the constraints.

The corporate planner's analysis, studies and discussions are reviewed and assessed to produce an overall strategy for the company with a view to achieving its profit targets for several years ahead. Individual plans of action should be drawn up to put each part of the overall strategy into effect. This is done by instructing one man to take an exclusive responsibility for one part of the plan, giving him a detailed specification of his tasks and ensure that he reports progress on a systematic basis for deciding the corrective action. An efficient communication system has to be designed to enable a close watch to be kept on all the important trends and events so that action can be taken in time. If any new trend emerges or an unexpected event occurs such that a new profit gap equal to more than 3 or 4 per cent of the profit target appears, then a revision of forecast or existing plans becomes necessary.

It may be noted that forecast is one's expectation of how trends and events that are beyond one's control will behave in the future. Forecasts are nearly always inaccurate. Plans, on the other hand, are actions one intends to take to alter factors that are within one's control. Though plans are not always adhered to, at least the decision to carry them out or not is within one's control. Since quality of decision depends upon one's knowledge of the future, and since a plan is likely to be a more reliable estimate of the future than a forecast, it follows that the more the future is within one's control the better will be one's decision. In other words, the higher the proportion of the future that can be planned, by bringing it under one's control, the more likely it is that one's next immediate action will be successful in achieving the objective. It is necessary, there-

fore, to forecast or to plan those future trends and events that have a bearing on these actions, otherwise not. For this reason some long-range plans and forecasts need not be in great detail.

Role of corporate planner. Corporate planner's task is to introduce a decision-making system and not to take the decision. The corporate planner has to do only two things: first, get the corporate planning system going and, secondly, see that it keeps going. He is to see that a system is installed, that the obvious pitfalls are avoided, that the full advantages of treating the company as a corporate whole and looking far enough ahead are reaped. He is not there to run a company nor to do its planning but only to see that it is done. The men who plan should also be the men who are in touch with reality and who are going to play an executive part in carrying out the plans.

The corporate planner has to ensure that these corporate executives do know the company's objective, that a company view is taken, that they do know how to plan and do find time to do it. He is only to assist them and to supervise the whole process of planning. He should as far as possible stand back from the day-to-day affairs of the company to preserve an objective view of it. His task is limited to warning the Board when the plan is required to close a gap, helping them to identify what the most appropriate plan might be, assisting others to draw it up and generally ensuring that the forecasts and the analyses of problems were of a high standard that the system demands. As a rule, he should see that the planning is done well, not do it himself.

Planning staff. The relations of planning staff with other groups in the organisation, particularly top management, are critical to the successful performance of planning. Personnel requirements for corporate planning staff vary. In addition to the technical expertise in finance, engineering, economics, mathematics and behavioural sciences, planners should have qualities such as an ability to deal with top management, a capacity to face all sorts of problems within as well as without their disciplines, objectivity, clarity of thought, maturity, a capacity to resist frustration from line or staff, or from the too frequent association with problems that have no single correct answer.

The corporate planning staff must deal with parallel corporate staff in divisions in its integrating role. The connection between the overall corporate strategic plans and specific detailed divisional plans need not be vigorously tight. A planning liaison group should develop a maturity interest. A high degree of affinity is required between the people who are doing the planning and the executives. The influence of a planning group

is substantial when the planning programme is built into the fabric of the organisation.

Central corporate planning group exercises a number of functions : develop plans in conjunction with line managers, develop plans in collaboration with corporate or division staff, provide guidance for planning in their divisions, coordinate plans made in their divisions for examination by top management, review plans as or after they are presented to top management, and make plans with the division when it may not have a planning staff.

The chief executive of a company is usually responsible for corporate planning. The most effective planning is done when he strongly supports the planning programme and exerts his influence at appropriate point in the process. Organisational arrangements are not as important to effective planning as strong interest at top level management.

Capital expenditure and corporate planning. Capital expenditure must be integrated into the corporate plans. The economic justification for a capital expenditure programme requires a long-term estimate of profits which in turn involves projection of sales and costs of operation for a period of years. Accordingly, long range financial planning becomes essential for a company that wishes to grow. The company has to establish objectives and goals as the part of a master plan for long range survival and/or growth. For growth to become a reality, management should initiate action on a time schedule which will direct capital into the projects for raising the overall returns on investment.

Long range planning for capital expenditures is essential due to the following reasons : (i) Yearly corporate expansion should be fitted into an ordinary plan of growth. It would help in adopting capital expenditure to anticipated sales requirements. (ii) Profitability of capital expenditures is tested over a period of time as against the following one year. (iii) Plan sites, construction contracts, water and power facilities have to be contracted for in advance. (iv) Capital expenditures have to be integrated into planning of the company with a view to finding out whether the necessary funds would be provided by internal or external sources. (v) Long-range planning is necessary for the proper timing of capital expenditures, keeping in mind the trend of the business cycle. Capital expenditures made during the depression can prove helpful to meet the enhanced sales requirements of the succeeding period of prosperity, whereas capital expenditures undertaken at the peak of prosperity may not be completed until the subsequent period of depression. (vi) Long range planning assists in examining the impact of capital expenditures upon depreciation, insurance expenses, other

fixed expenses etc. with a view to making an allowance for them in projecting the operating results.

The programme for capital expenditure covers more than one year because of the complexity of modern machinery and the long period required in investments for new product-lines, expansion and replacement. The programme is, therefore, projected over a period of years. It should be based upon a thorough survey of industry trends, processes and methods, new equipment, sales forecasts, production capacities and profit forecasts. The programme is usually divided into two parts: the period covering the next fiscal year; and the period covering the succeeding four years. The programme may be prepared three months prior to the next fiscal year at which time the next fiscal year can be carefully reviewed and broken down into quarters and another year in the future can be projected. Revisions in any period or year can be made at this time to reflect changes in trends or methods.

Long range planning, it would be noted, has to be related to the current activities and progress of a company. In fact, the company develops a series of short-term guidelines that eventually merge into long-term objectives. This interaction between short-term and long-term goals is essential in order to have an orderly growth and eventual profit maximisation. Capital expenditures are unavoidably reflected in the company's operations, *i.e.*, in sales or costs depending upon the nature of expenditure. Thus the capital budget, despite the fact that it is planned over a long period, should be integrated with the operating objectives. The studies conducted in this area reveal that five years is the normal planning period to estimate integrated sales and cost projects, operating needs and capital equipment needs. Equipment plans are usually very general beyond a one-year budget.

Effects of decisions regarding capital expenditures are far reaching—frequently, the determining factor in the success or failure of an enterprise. Once acquired, capital assets cannot be disposed of except at a substantial loss. If purchased on a long-term credit basis, a continuing liability is incurred over a long period of time. If increased earnings do not result from the purchase of the additional capital assets, the ability of the company to discharge its financial obligations may be affected adversely. Expansion of capital facilities by means of the sale of shares dilutes ownership of the company and if not carefully planned and controlled, it can result in the loss of voting control by management and in an inadequate return upon its investing capital, thereby reducing the market price of equity shares.

The amount and wisdom of expenditures on capital assets have an important effect upon future operating costs. The balancing of capital

expenditures against estimated savings in future operating costs requires careful analysis of both the engineering and financial aspects of the company's operations. A careful balancing of facilities at each stage of the productive process is necessary to avoid higher operating costs and delays caused by facility bottlenecks and the freezing of capital in idle equipment. A lack of balance among productive facilities also burdens the profit and loss account with added depreciation allowances, insurance and other costs.

The process of corporate planning and forecasting involves four basic steps: (i) the economic forecast; (ii) the sales forecast; (iii) the production forecast; and (iv) the financial forecast. Here we are mainly concerned with the discussion of the financial forecasting and planning. The process of financial forecasting and planning ties together the other three estimates—economic, sales and production—by providing a common denominator of rupees. If operations extend over the next 1, 3, 5, 10, or 15 years as anticipated, how much additional capital—fixed and/or working—will be required? How will the company's balance sheet and profit and loss account look like after 1, 2 or 5 years and so on?

The essential components of a long-range financial plan consist of the following statements: (i) Projected Income Statement; (ii) Projected Balance Sheet; (iii) Statement showing Sources and Uses of Funds; and (iv) Capital Expenditures Programme. Titles and forms may vary from company to company but the above four are the basic estimates used by the firms having comprehensive financial planning system.

The form of projected profit and loss statement corresponds to that which the company uses in its regular financial statements. In the projected income statement, figures involved are estimates as against actuals. It depends on sales projection which in turn depends on an economic production. Profit planning for a shorter period is usually based on profit and loss statements by months and long-term profit forecasts are normally prepared for 6 or 12 month intervals after the first year. Companies producing a large number of products prepare estimated profit and loss statements by products groups.

Though the projected balance sheet has the same form and content as the regular balance sheet to facilitate preparation and interpretation, it is frequently condensed to show annually more significant items. Balance sheet projections may be prepared on a monthly basis for the first year, and for the second year it may be sufficient to project at 3-month or 6-month intervals and thereafter at the end of each of the years of the forecasting. Basic assumptions, however, have to be made with respect to the need and nature of any new financing and its effect on the capital structure.

The statement of sources and uses of funds is made to measure the total inflow of funds, month by month, in the first year and thereafter year by year over the forecasting period and to match against this, all the disbursement of funds required. Sources of funds, among other items, include profits retained, depreciation, sale proceeds and asset, new capital raised. Disbursements involve dividends, loans to other companies, new investments, additions to plant and machinery, debt requirement, etc. This is a basic document for the chief financial executive enabling him to obtain an overall view of his total operations requirements several years ahead.

SUGGESTED READINGS

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- National Association of Accountants, *Long-Range Profit Planning*, NAA Research Report No. 42, New York, 1964.
- Payne, Bruce, *Planning for Company Growth*, New York: McGraw-Hill, 1963.
- Steiner, George A. (ed), *Managerial Long-Range Planning*, New York: McGraw-Hill, 1963.

4

Funds Flow Analysis

The balance sheet of a company reveals its financial status at a certain point of time. Its usefulness is limited for analysis and planning purposes. The financial executive must know the funds flows underlying the balance sheet changes. The statement of sources and uses of funds serves this end. The operation of business enterprise involves the conversion of cash into non-cash assets which when used are recovered back in cash form. The funds used in this circuit flow can be raised in a number of ways. The selection of means to raise funds together with the associated uses has a strong bearing on the soundness of financial programme of a business firm. For judging the effectiveness of the financial management, it is imperative to review the record of the past as to the sources and uses of such funds.

Concept. The statement showing sources and uses of funds, popularly known as the 'funds flow statement' is a condensed report of how the activities of the business have been financed and how the financial resources have been used during the period covered by the statement. It is an operating statement as it summarises the financial activities for a period of time. But it performs a different function from the income statement which is primarily a presentation of revenue and expenses items and the computation of the net income for the period. The funds flow statement is a report of the financial operations of a business undertaking. It shows the ebb and flow of funds into and out of a business. It covers all movements that involve an actual exchange of assets; only transactions representing book-keeping adjustments are not reported. It discloses the results or the policies followed by the financial management in a way which probably makes it more understandable to most readers than are the other financial statements.

The funds flow statement is not a supporting schedule to the balance sheet, the income statement or the statement of allocation of earnings although it is technically based upon the same accounting data and ties into these financial statements. It is, instead, a complementary statement, an important report in its own right to present information which cannot be obtained from the other financial statements.

Some hold that it is one of the triad of statements, along with the balance sheet and profit and loss account, that is indispensable to obtaining full record of a company's financial condition. Research Study No. 2 of the American Institute of Certified Public Accountants recommended that "the inclusion of a well-designed comparative funds statement in the annual report should become a generally accepted practice." In 1964, the New York Stock Exchange suggested to all listed companies that they provide a statement of sources and applications of funds in future reports to share-owners. This statement should also be incorporated in the package of information submitted to top management. It is worth noting that this statement is required to form part of the material supplied as part of a loan request to financial institutions like the Industrial Credit and Investment Corporation of India, the Industrial Development Bank of India, the Industrial Finance Corporation and the like. Its broadening use ranks it with important documents of financial analysis.

Titles of funds flow statement. Various titles are used for the funds flow statement, *i.e.*, Statement of Sources and Application (utilisation, employment, disposition, use) of Funds, Summary of Financial Operations, Changes in Financial Position, Funds Received and Disbursed, Funds Generated and Expanded, Financial Expansion and Replacement, Changes in Working Capital, Statement of Funds, Money Provided and its Disposition, etc. It is really difficult to find a short title for any statement which conveys much to the readers as to the contents and function. The title of a funds flow statement is modified from time to time in order to emphasise the principal event or funds of the period such as the title Financing Expansion and Replacement, Changes in Working Capital, etc. There has been a suggestion that Summary of Financial Operations or Report on Financial Operations are more appropriate titles. A point worth noting in this connection is that *the funds flow statement is not a statement of financial position but it is instead a report on financial operations, changes, flows or movements during the period.*

Meaning of the term "funds". The term "funds" has been defined in various ways. Some interpret funds as literal cash; and funds flow statement prepared on this basis is called a cash flow statement which shows results corresponding to those obtained from a set of books kept on a cash receipts and disbursement basis. The net income is adjusted for the

amount of the increases or decreases in accounts receivable, accounts payable, inventories, accrued revenue and expenses, etc. This type of statement is prepared especially for the use of management in predicting future cash requirements. Some funds statements intend to show the change in 'cash and marketable securities' which is another possible conception of the term 'funds'. But by far the most common definition of funds is 'working capital' or 'net current assets'. Many analysts assume that the basic purpose of the funds statements is to account for the change in working capital during the period covered by the statement.

A different and somewhat broader approach is now adopted to the problem of interpreting the term funds. It is conceived as "all financial resources and it extends the concept to include assets or financial resources which do not affect or flow through the working capital accounts. This seems to be the most useful meaning of the term. The narrower definitions, such as cash or working capital, have often led to the omission from the statement of the effect of transactions which do not directly affect cash or working capital, but which nevertheless are important items in the financial administration of the business. Examples are the purchase of property in exchange for shares or bonds, exchanges of property and the like. The broader approach provides a more complete and informative presentation. There is a need for a funds statement even though there are no changes in cash or working capital. The narrower concepts tend to restrict the form in which the statement is prepared and to introduce too high a degree of uniformity in the arrangement of the items. On the other hand, the funds flow statement should be a flexible device, designed to disclose and emphasise all significant changes and transactions, whether they are within or without the current asset and liability groups. It should be broad enough to cover all financial management operations rather than merely a reconciliation of cash or working capital.

Objectives. The funds flow statement is used widely by financial analysts, credit granting institutions and financial managers. Funds flow statement is a useful tool in the financial manager's analytical kit. The basic purpose of this statement is to indicate on a historical basis where cash came from and where it was used. It is often regarded as a counterpart to the cash budget. The cash budget is projection into the future whereas the funds flow statement is historical.

The funds flow statement contributes materially to the financial aspects of the answers to such questions as :

1. Why were the net current assets down though the net income was up, or *vice versa* ?

2. How was it possible to distribute dividends in excess of current earnings or in the presence of a net loss for the period ?
3. How was the expansion in plant and equipment financed ?
4. What happened to the proceeds of sale of plant and equipment ?
5. How was the retirement of debt accomplished ?
6. What became to the proceeds of share issue or debenture issue ?
7. How was the increase in working capital financed ?
8. Where did the profits go ?

Definite answers to the above questions are seldom obtainable from casual inspection of the funds flow statement. The funds derived from a particular source are rarely segregated and used for a particular purpose. On the other hand, they are merged with the other funds and allocated under the overall decisions and policies of the financial management. However, certain useful assumptions can often be made and reasonable conclusions are usually not difficult to arrive at.

The principal material used in the preparation of a funds flow statement ordinarily consists of comparative balance sheets with the net changes which have taken place in the various items during the period covered by the statement. This statement organises the material after some eliminations, combinations and additional analysis and reclassification into two principal groups: (i) Sources of funds, and (ii) Applications, disposition or uses of funds. Broadly speaking, sources of funds are indicated by decreases in assets and increases in liabilities or in the shareholder's equity while applications of funds are associated with increases in assets and decreases in liabilities or in the shareholder's equity.

Comparative funds flow statements, covering several years of operations in a company, enable the reader to obtain useful information on the financial methods used in the past, dividend policies followed, and the contribution of funds derived from the operations to the growth of the company. They also provide reliable clues as to future financial requirements.

The funds flow statement is a report of the financial operations of the company. Though this statement cannot replace the income statement (profit and loss account) but it provides an equally significant analysis of the financial phase of business operations. This statement is also more comparable with those of other companies than are the balance sheets and income statements since some of the major variations in accounting procedure are eliminated in the calculation of the funds provided from operations.

Technique of funds flow statement. The broad pattern outlining the movements of funds within a company may be traced through successive balance sheets. Exhibit 1 shows the changes in the assets and liabilities of Hypothetical Ltd., a chemical company, for the year ending March 31, 1975 over 1974. The statement reveals that the company increased its reserves and surplus by Rs. 24 lakhs and current liabilities and provisions by Rs. 7 lakhs. This amount of Rs. 31 lakhs (Rs 24 lakhs + Rs 7 lakhs) was used: (i) for the redemption of long-term debt to an extent of Rs. 17 lakhs; (ii) for the reduction of short-term credit by Rs. 11 lakhs; (iii) for addition to net fixed assets by Rs. 1 lakh and current assets by Rs 2 lakhs.

Exhibit 1

*Comparative Balance Sheets—Hypothetical Ltd.
as on March 31,*

(Rs. in lakhs)

			1974	1975	Net change
Share Capital	...	...	Rs.	Rs.	Rs.
Preference	...	...	40	40	...
Ordinary	...	...	80	80	...
			120	120	...
Reserves and Surplus	...	...	82	106	+24
Long-term loans	...	...	113	96	-17
Short-term loans	...	...	47	36	-11
Current Liabilities and Provisions	...	...	39	46	+ 7
			401	404	+ 3
Fixed Assets	...	...	375	412	...
Less : Depreciation	...	...	167	203	...
			208	209	+ 1
Current Assets	...	...	169	171	+ 2
Inventory	...	...	90	93	+ 3
Sundry Debtors	...	...	44	63	+19
Cash and Marketable Securities	...	...	9	1	- 8
Loans and Advances	...	...	26	14	-12
Technical know-how	...	...	24	24	...
			401	404	+ 3

As the balance sheets in the above illustration are simple, the movements of funds are easily detected. But Balance Sheets are usually more elaborate and the inter-relationships more difficult to perceive. It is, therefore, necessary to redesign the reporting form with a view to having a more convenient disclosure of how the company's funds are obtained and employed. The funds flow statement (see Exhibit 2) has been devised to show the changes representing sources of funds on the one hand and those representing uses on the other. This division helps in bringing into sharper focus the nature of movements that have occurred.

A reference to Exhibit 2 showing the sources and uses of funds in 1975 over 1974 reveals that funds were made available not only by additions to reserves and surplus (Rs. 24 lakhs) and current liabilities and provisions (Rs. 7 lakhs) but also by reduction in current assets like cash and marketable securities by Rs. 8 lakhs and loans and advances by Rs. 12 lakhs. Thus a sum of Rs. 51 lakhs was made available. This amount of Rs 51 lakhs was used to *increase* net fixed assets by Rs. 1 lakh, inventory by Rs. 3 lakhs, sundry debtors by Rs. 19 lakhs, and to *decrease* long-term loan by Rs. 17 lakhs and short-term credit by Rs. 11 lakhs.

Exhibit 2

Statement of Sources and Uses of Funds in Hypothetical Ltd., in 1975 over 1974

(Rs. in lakhs)

Sources	Rs.	Uses	Rs.
Increase in Reserves and Surplus	24	Increase in net fixed assets	1
Increase in Current Liabilities and Provisions	7	Increase in Current Assets : Inventory	3
Decrease in Current Assets : Cash and Marketable Securities	8	Sundry Debtors	19
Loans and Advances	12	Decrease in long-term loans	17
		Decrease in short-term credit	11
	<u>51</u>		<u>51</u>

Nature of sources and uses of funds. It may be noted that changes representing *sources* are :

- (i) decreases in assets by sale, depreciation, better control of inventory and sundry debtors, reduction in cash balance;
- (ii) increases in liabilities, addition to current liabilities and provisions, increase in long-term debt, issue of debentures; and

- (iii) increases in net worth, addition to resources and surplus, sale of additional shares, retention of earnings.

Changes showing the *uses* of funds include :

- (i) increases in assets, addition to fixed assets, building up of inventory, piling up of sundry debtors, addition to investment;
 (ii) decreases in liabilities as by pay-off a long- or short-term loan, reduction of creditors; and
 (iii) decreases in net worth, incurring of losses, withdrawal of funds from a business, dividend payment in periods of no or low profits.

Exhibit 3

Refined Statement of Sources and Uses of Funds

(Rs. in lakhs)

Sources	Rs.	Uses	Rs.
Addition to Net Worth (Reserves and Surplus)	24	Addition to net Fixed Assets	1
		Net change in Working Capital :	
		¹ Addition to Current Assets	2
		² Reduction in current liabilities	4 6
		Reduction in long-term debt	17
	<u>24</u>		<u>24</u>

¹ Addition to Current Assets has been calculated as follows :

			Rs (in lakhs)
Increase in Inventory	..	..	3
Increase in Sundry Debtors	..	..	19
			<u>22</u>
Less :			
Decrease in Cash and Marketable Securities		8	
Decrease in Loans and Advances		12	20
			<u>2</u>
		Net addition to Current Assets	

² Change in current liabilities has been arrived at as given below :

Increase in current liabilities and provisions	..	7
Less : Reduction in short-term credit	..	—11
		<u>—4</u>
		Net decrease in current liabilities

Refining the funds flow statement to analyse net change in working capital. The funds flow statement may be prepared to analyse and study the position of net working capital. In such a case, emphasis is given to the short-term financial position and its relationship to the changes in long-term assets, liabilities and net worth. Exhibit 3 shows the net change in working capital of Hypothetical. The necessary calculations have been explained in the foot-notes to this Exhibit.

Analysing the flow of funds by use of the Profit and Loss Account. For preparing the funds flow statement based not only on the Balance Sheet data but also on the Profit and Loss Account data, it is necessary to break down the changes in surplus between earnings incurred, which are a source of funds, and dividends distributed representing a drain. Moreover, adjustment is required for book entries, such as depreciation, amortization by adding these charges back to the applicable asset accounts and restoring them to earnings as no transfer of funds is involved.

This procedure has been illustrated by using the Profit and Loss Account of Hypothetical Ltd. (Exhibit 4).

Exhibit 4

Hypothetical Limited

Profit and Loss Account for the Year ended March 31

(Rs. in lakhs)

				1974
Net Sales	...	...		308
Cost of Goods Sold ¹	...	...		—205
Gross Profit	...	...		103
Administrative and selling expenses		...		—21
Operating Profit	...	...		82
Other Income	...	...		+1
Earning before Interest and Taxes (EBIT)				83
Interest	...	...	...	—13
Taxes	...	...	...	—30
Net Profit	...	...	...	40
Dividends:	...	...	...	—16
Preference	...	...	3	
Ordinary	...	...	13	
Retained Earnings	...	...		24

¹ Inclusive of depreciation for Rs. 36 lakhs.

The statement (Exhibit 4) reveals that the increase in net worth by Rs. 24 lakhs, shown as a source of funds in Exhibits 2 and 3, is composed of Rs. 40 lakhs of net profit less Rs. 16 lakhs of dividend payments. Depreciation of Rs. 36 lakhs lowers profits but it is a book-keeping expense that does not draw funds out of the firm. Therefore, the charge is considered a source of funds and is balanced by restoring correspondingly the value of the asset to which it is applicable. After making these adjustments, the funds statement would be as in Exhibit 5.

Exhibit 5

Statement of Sources and Uses of Funds Embodying Income Data, Based on Changes in Working Capital

(Rs. in lakhs)

Sources	Rs.	Uses	Rs.
Net Income	40	Dividends paid	16
Depreciation (expense requiring no cash outlay)	36	Additions to <i>gross</i> fixed assets	37
		Net change in Working Capital	6
		Reduction in long-term debt	17
	<hr/> 76		<hr/> 76

Cash flow analysis and funds statement. Cash flow is a useful concept to be used as one of the tools of investment analysis. The expression 'cash flow' in the literature of investment and security analysis is usually an equivalent of "funds provided by operations" in the typical funds statement. "Cash flow" in financial analysis means net income after adding back expense items which currently do not use funds, such as depreciation. (It may also involve deducting revenue items which do not currently provide funds, such as the current amortization of deferred income). It corresponds to the funds derived from operations in the statement of sources and uses of funds.

The term 'cash flow', however, is a misnomer. It is neither cash nor flow. The net income is hardly computed on a cash basis. Adding back such items as depreciation does not convert the net income to something which can properly be called cash flow or income. The word 'flow' is inappropriate since the amount involved is the balance or the result of a flow of many transactions rather than being a measure of the flow itself. The term cash flow seems to be accepted in financial literature as a convenient symbol or catch phrase. "We deplore the employment of such

inaccurate terminology and urge the adoption of a more appropriate phrase.”¹

The concept of cash flow can be used effectively as one of the major factors in judging the ability to meet debt-retirement requirements, to maintain regular dividends, and to finance replacement and expansion costs.

The amount of cash flow in no sense should be considered to be a substitute for or an improvement upon the net income, calculated with proper and reasonable deduction for depreciation, depletion, amortization and the like. One should avoid the impression that cash flow earnings are superior as an indication of the company's real earnings power.

That portion of the cash flow associated with the accounting for depreciation and similar items is merely part of the cycle of (i) investment in an asset, (ii) recovery of the cost from revenue earning operations, and (iii) reinvestment. Unlike the net income this portion of the cash flow has no effect upon the shareholder's equity or net worth. Only the net income can properly be compared with the shareholder's investment in arriving at a measure of the success of the business operations.

Pro forma sources and uses of funds. A pro forma, or projected, sources and uses of funds statement can also be constructed to show how a firm plans to acquire and employ funds during some future period. Given the projected balance sheet and supplementary projected data on earnings, dividends and depreciation, the financial manager can construct a pro forma sources and uses of funds statement to summarize his firm's projected operations over the planning horizon. Such a statement is obviously of much interest to lenders as well as to the firm's own management.

Is depreciation a “source” of funds ? Many of the comments and much of the discussion of the cash flow indicate an inexact comprehension of the nature of depreciation and other similar “non-fund” adjustments. The language used and the form of presentation often imply that depreciation is a “source” of funds. The accounting for depreciation gives no support to such a contention. The cost of depreciable asset such as a building or plant and machinery uses funds in the period in which the acquisition takes place; and this cost must be covered during the scope of its life by the excess revenue over operating costs other than the depreciation on that asset, if a loss on the operation is to be avoided. In other words, depreciation is an operating cost or expense and the purpose of depreciation accounting is to distribute the cost systematically over the

¹ *Cash Flow Analysis and the Fund Statement*, An Accounting Research Study (1961), p. 5, American Institute of CPAs.

operating periods included in the useful life of the property. The only sense in which depreciation can be a source of funds is that, like any other accrued operating expense, it restricts the amount of dividends which might be distributed to shareholders if it were not recorded.

The amount of depreciation can properly be included in a measure of the amount of cash flow. The cash flow, as the amount of funds provided by revenue-earning operations, is actually the difference between the funds derived from revenue less the funds used for out-of-pocket expenses. The deduction of depreciation from revenue does not involve an expenditure of funds. So the funds received in connection with sales and other revenue are to this extent retained in the business. Both the accountant and the financial analyst must recognise that while depreciation is primarily an allocation of cost to operations, it usually has a financial aspect which is also significant.

Advantages. The funds flow statement helps in guiding the destiny of a business by enabling the executives to visualize the movement of funds that constantly take place. They are in a position to know the portion generated by operations as compared with other sources. A failure to detect pattern of change can perpetuate undesirable trends and lead to financial difficulties. An extended reliance on outside sources for additional funds can create a top-heavy capital structure. A build-up of working capital can be deceptive if it is obtained by reducing other liquid assets. This statement helps in detecting the sources for financing the heavy accumulation of inventory and accounts receivables. It is a convenient device for summarising overall movements in a single document that is relatively non-technical and easy to follow.

The statement is also helpful in forecasting the flow of funds. It is used for projecting working capital requirements. It highlights future need for funds and provides ample time to work out suitable arrangements. It is playing an increasing role in the evaluation of trade credit and is widely used by bank loan officers to trace the working capital flows of prospective borrowers.

The funds statement is used widely by financial analysts and credit grantors. If no such statement is given in a corporate annual report, attempts are usually made to prepare one from the available information in the annual report plus any additional material which may be furnished by the company. This statement is used in many governmental reports and in certain areas of economic and financial research. It is, in fact, a financial statement which is or should be of interest to all users of corporate annual reports.

SUGGESTED READINGS

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CASE STUDIES

4.1. PROBLEM ON SOURCES AND USES OF FUNDS

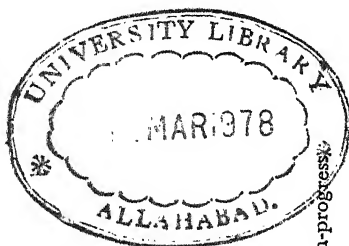
The Statement below shows the Sources and Uses of Funds of 1333 Selected Public Limited Companies for years 1961-62 to 1963-64. It incorporates the yearly study made on company finances by the Reserve Bank of India. This Statement provides an insight into the application of financial resources, *i.e.*, capital formation, in corporate sector. Examine the relative merits of the different sources of funds and also the pattern of using them.

Sources and Uses of Funds of 1333 Selected Public Limited Companies (1961-62 to 1963-64)

(Rupees in crores)

	1961-62		1962-63		1963-64	
	(Rs.)	%	(Rs.)	%	(Rs.)	%
Sources of Funds						
<i>Internal Sources</i>						
A. 1. Paid-up Capital (Capitalised reserves)	180.90	55.3	170.19	48.8	190.98	51.5
B. Reserves and Surpluses	6.74	2.1	13.40	3.8	6.92	1.9
2. Capital Reserves	52.42	16.0	43.22	12.4	66.73	18.0
3. Development Rebate Reserve	2.74	0.8	0.81	0.2	4.08	1.1
4. Other Reserves and Surplus	19.99	6.1	27.96	8.0	22.64	6.1
C. Provisions	29.69	9.1	14.45	4.2	40.01	10.8
5. Depreciation	121.74	37.2	113.57	32.6	117.33	31.6
6. Taxation	94.27	28.8	99.58	28.6	115.80	31.2
7. Other current	19.38	5.9	25.58	7.3	1.09	0.3
8. Non-current	5.81	1.8	-6.92	-2.0	0.71	0.2
	2.28	0.7	-4.67	-1.3	-0.27	-0.1
<i>External Sources</i>	146.03	44.7	178.82	51.2	180.27	48.5
D. 9. Paid-up Capital (fresh issues)	36.50	11.2	28.85	8.2	24.63	6.6
E. Borrowings	67.31	20.6	94.87	27.2	102.88	27.7
10. From Banks	52.09	15.9	68.63	19.7	33.45	9.0
11. From Statutory Financial Corporations	0.48	0.1	3.41	1.0	6.31	1.7
12. Other Debentures	2.17	0.7	2.07	0.6	3.15	0.8

13. Other Mortgages	0.28	1.0	3.43	20.59	5.6
14. Others	12.29	3.8	17.33	39.33	10.6
F. 15. Trade Dues and other Current Liabilities	41.67	12.7	55.39	53.87	14.5
G. 16. Miscellaneous Non-current Liabilities	0.55	0.2	-0.29	-1.11	-0.3
17. Total	326.93	100.0	349.01	371.25	100.0
Uses of Funds					
H. Gross Fixed Assets	185.08	56.6	193.07	232.71	62.7
18. Land	4.65	1.4	2.82	7.46	2.0
19. Buildings	28.74	8.8	35.95	30.81	8.3
20. Plant and Machinery	133.18	40.7	137.68	183.11	49.3
21. Others	18.51	5.7	16.62	11.33	3.1
I. Inventories	85.29	26.1	76.74	66.00	17.8
22. Raw Materials	30.23	9.2	28.80	42.38	11.4
23. Finished Goods and Work-in-progress	34.21	10.5	23.32	-7.53	-2.0
24. Others	20.85	6.4	24.62	31.15	8.4
J. 25. Loans and Advances and other Debtor Balances	46.12	14.1	73.83	60.38	16.2
K. 26. Investments	4.07	1.2	8.55	7.93	1.2
L. 27. Other Assets	-0.16	0	-0.22	-4.23	-1.1
M. 28. Cash and Bank Balances	6.53	2.0	-2.96	8.46	2.3
29. Total	326.93	100.0	349.01	371.25	100.0



Note: Item B (2) excludes premium on shares and forfeited shares;

C (6) adjusted for advance of income tax; and

D (9) includes premium on shares and forfeited shares.

4.2. THE TATA IRON AND STEEL COMPANY LIMITED

Summarised balance sheets and income-statements of the Tata Iron and Steel Company Limited (TISCO) for the years ending 31st March, 1965, 1964, 1963, 1962 and 1961 are given in Exhibits 1 and 2. In 1956 the Company launched an expansion programme popularly known as Two Million-ton Programme (TMP). This programme involved a substantial amount of capital expenditure. It was completed by the end of 1959-60. The estimated cost of the TMP project, as accepted by the World Bank in 1956, was Rs. 95 crores. The actual costs, as reported by the Chairman of the Company in the 1961-62 Annual Report, including subsequent additions and modifications was about Rs. 110 crores. A statement (Exhibit 3) was included in the Annual Report of the Company for the year 1964-65 showing 'Sources and Application of Funds' from 1955-56 to 1964-65. This statement gives a comparative flow of funds in pre-TMP year (1955-56), TMP Construction period (1956-57 to 1959-60) and post-TMP period (1960-61 to 1964-65).

The shareholders of the Company expected for the year ending March 31, 1965 a higher dividend than the previous year. The decision of the Board to maintain the distribution of dividend at the previous year's level came as a big shock to the investing class. The Directors' Report on the financial results of the Company for the year 1964-65 mentioned that while the year's operating profits, before depreciation, interests and taxes, were substantially more than last year, the much larger incidence of depreciation, the higher provision for interest and the higher incidence of taxes more than last year resulted in the disposable profits being less than the last year.

A higher provision for depreciation was made, though there were no significant additions to the plant, because of the increase in the rate of depreciation on a straight-line basis from 5 per cent to 6.8 per cent on plant and machinery to cover the additional depreciation allowed for income-tax purposes for third-shift operation. This provision resulted in an increase in the flat rate of depreciation.

A provision of Rs. 1.75 crores was made in the accounts for 1964-65 in respect of the interest for the years 1961-62 to 1964-65 on the special advance of Rs. 10 crores taken from the Government of India. It was done in accordance with the proposed terms of settlement for the repayment of the advance to the Government. Of this provision of Rs. 1.75 crores, Rs. 0.49 crore was in respect of the year 1964-65.

Provision for taxes was substantially higher consequent on a reduction in the depreciation allowance on the income-tax written down value basis

from Rs. 13.94 crores in 1963-64 to Rs. 11.72 crores in 1964-65. There was also a reduction in the development rebate allowance from Rs. 1.30 crores in 1963-64 to Rs. 0.35 crore in 1964-65.

The Chairman of the Company in the annual report for the year 1964-65 drew the attention of the shareholders to the fact that the Company had been called upon by the Government to undertake a further expansion of about two million ingot tonnes in the Fourth Plan period although full production would not be achieved until the Fifth Plan period. This project for doubling once again the capacity of the Company's plant at Jamshedpur posed, inter alia, financial problems of tremendous magnitude and complexity. The Directors of the Company had taken the view that provided the problem of finance could be solved on a basis which would ensure continued financial stability of the Company and the maintenance of existing dividends on the present capital and offer prospects of a fair reward to the shareholders, the Company should not reject such an opportunity of bringing the plant upto its ultimate maximum capacity and efficiency.

The Company had been representing to the Government for revising the low retention prices fixed by the Government. In 1961-62, the Company addressed a report to the Government protesting against the reduction in the retention prices recommended by the Tariff Commission. Any further issue of fresh capital in addition to the share capital amounting to Rs. 21.61 crores raised from 1956-57 to 1959-60 seemed impracticable and unfair to the shareholders considering the limitations imposed by the retention prices fixed by the Government on the Company's ability to pay adequate dividends on the existing share capital and the condition of the share market. Similarly, the capacity of the Company to service and repay the borrowing depended on the resources which could be raised from retained earnings.

There was pressure on the Company for the repayment of the special advance. The exact terms of repayment of the special advance and interest thereon had not been finalised till the publication of the 1964-65 Annual Report. In August 1965, a compromise formula for the repayment of the advance by the Company was reported in the Press. The formula proposed a five-year period during which the advance of Rs 10 crores was to be repaid in instalments. The payment of interest was expected to follow the repayment of the principal.

Assignments

1. Prepare a statement based on Exhibit 1 to show yearly changes in the flow of funds during 1961-65.

2. Compare the results of your study for this period with that of 'Sources and Application of Funds' given in Exhibit 3 and explain the differences, if any.

3. You are given the following additional information for the accounting year ending March, 1965 to reconcile your calculations of changes in the flow of funds during this year with those shown in 'Sources and Application of Funds' (Exhibit 3) for this very year :

(a) An amount of Rs 75 lakhs was deducted from the Gross Block on account of the cost of assets scrapped in 1964-65. This deduction, however, did not affect actual outlay on capital expenditure during the year.

(b) Advances of Rs 112 lakhs for capital expenditure in 1964-65 were shown as an item of current assets under 'loans and advances' as required by the Companies Act, 1956.

Exhibit 1

The Tata Iron and Steel Company Limited

(Rupees in crores)

	1965	1964	1963	1962	1961
<i>Capital and Liabilities</i>					
Share Capital					
Preference	11.40	11.40	11.40	11.40	11.40
Ordinary	27.57	27.57	27.57	27.57	27.57
Retained Earnings	45.68	42.14	35.38	29.29	27.67
Borrowing					
Secured	32.18	35.81	43.57	52.84	56.62
Unsecured	1.56	1.46	1.06	1.24	2.41
Special Advance from the Government of India	10.00	10.00	10.00	10.00	10.00
Current Liabilities & Provisions	31.64	25.60	18.58	25.08	28.42
Total	160.03	153.98	147.56	157.42	164.09
<i>Assets</i>					
Fixed Assets					
Gross Block	204.45	200.38	195.88	190.23	185.52
Less Depreciation	109.94	100.23	92.56	81.17	68.76
Net Block	94.51	100.15	103.32	109.06	116.76
Investments	10.62	9.86	8.85	8.87	8.85
Current Assets	54.90	43.97	35.39	39.49	38.48
Total	160.03	153.98	147.56	157.42	164.09

(c) Accumulated depreciation as on 31-3-1965 was shown after deducting an amount of Rs 43 lakhs for depreciation on assets scrapped in 1964-65. This deduction did not reduce the internal resources created by the provision for depreciation made in the accounts for the year.

4. As a financial analyst, you are required to offer interpretative comments using Exhibits 1, 2 and 3 on the methods and results of financing the expansion programme for the benefit of (a) management; (b) shareholders of the Company; (c) lending institutions; and (d) public in general.

Exhibit 2

The Tata Iron and Steel Company Limited

(Rupees in crores)

	1965	1964	1963	1962	1961
1. Income					
Sales of products	122.09	110.44	99.65	89.23	83.82
Other income	4.82	4.76	3.79	3.25	3.26
Total income	126.91	115.20	103.44	92.48	87.08
2. Expenditure					
Manufacturing	98.50	88.78	78.74	70.43	64.86
Depreciation	10.14	7.97	11.65	13.15	13.92
Interest	3.56	1.98	2.49	2.81	3.21
Total Expenditure	112.20	98.73	92.88	86.39	81.99
3. Profit before taxes	14.71	16.47	10.56	6.09	5.09
4. Taxes	6.15	4.75	0.80	..	..
5. Profit after taxes	8.56	11.72	9.76	6.09	5.09
6. Allocations					
(a) Dividends	5.25	5.25	4.90	4.65	4.65
(b) Retained earnings	3.31	6.47	4.86	1.44	0.44
Total	8.56	11.72	9.76	6.09	5.09

Exhibit 3

The Tata Iron and Steel Company Limited
Sources and Application of Funds

(In Crores of Rupees)

Year ending 31st March	1955-56 to 1959-60						1960-61 to 1964-65				
	Pre-T.M.P.*			T.M.P. Construction period*			Post-T.M.P.*			Total for 1960-61	
	1956			1956 to 1959-60			1961			to 1965	
	1956	1957	1958	1959	1960	1959-60	1961	1962	1963	1964	1965
1. Cash generated from operations :											
Depreciation	2.42	2.47	3.91	5.53	8.47	22.80	13.92	13.15	11.66	7.97	10.14
Profit before taxes	9.45	9.78	8.16	4.19	4.93	36.51	5.45	6.39	11.85	16.85	15.26
Total	11.87	12.25	12.07	9.72	13.40	59.31	19.37	19.54	23.51	24.82	25.40
2. New Share capital	..	8.60	4.72	0.04	8.25	21.61	..	..	..	..	..
3. Borrowings	0.17	8.70	38.85	23.64	3.70	75.06	0.73	1.65	0.81	0.87	0.42
4. Special advance from Government	4.39	0.81	..	..	..	5.20	..	..	..	..	..
5. Net decrease in working capital	2.21	2.15	0.94	..	..	5.30	0.80	..	..	..	0.80
	18.64	32.51	56.58	33.40	25.35	166.48	20.90	21.19	24.32	25.69	25.82
											117.92

Sources of Funds :

Application of Funds :

6. Capital Expenditure	12.31	16.12	52.09	24.45	5.72	120.69	7.47	5.50	5.51	4.93	5.94	29.35
7. Investments in shares and securities	0.97	0.88	1.31	0.89	1.03	5.08	0.01	0.02	(0.02)	1.01	0.76	1.78
8. Repayment of borrowings	..	0.08	0.04	0.04	10.40	10.56	8.77	6.62	10.27	8.22	3.95	37.83
9. Taxes	3.45	3.42	0.90	0.17	..	7.94	..	..	0.80	4.75	6.15	11.70
10. Dividends	1.91	2.01†	2.24‡	2.27‡	3.76	12.19	4.65	4.65	4.90	5.25	5.25	24.70
11. Net increase in working capital	..†	..	..	5.58	4.44	10.02	..	4.40	2.86	1.53	3.77	-12.56
	18.64	32.51	56.58	33.40	25.35	166.48	20.90	21.19	24.32	25.69	25.82	117.92

* T.M.P. = Two Million Ton Programme, including reserves created by a charge to operation, etc.

† Stock and stores, book debts, advances and cash balances less trade creditors, provisions etc.

‡ In addition, interest paid out of capital was Rs 0.10 crore for 1956-57, Rs 0.35 crore for 1957-58 and Rs 0.38 crore for 1958-59.

5

Ratio Analysis

Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. A ratio is a statistical yardstick that provides a measure of the relationship between two variables or figures. This relationship can be expressed as per cent (cost of goods sold as a percentage of sales) or as a quotient (current assets as a certain number of times the current liabilities).

As ratios are simple to calculate and easy to understand, there is a tendency to employ them profusely. While such statistical calculations stimulate thinking and develop understanding, there is a danger of the accumulation of a mass of data that obscures rather than clarifies relationships. The financial analyst has to steer a careful course. His experience and objectives of analysis help him in determining which of the ratios are more meaningful in a given situation.

The persons interested in the analysis of financial statements can be grouped under three heads: (i) owners or investors; (ii) creditors; and (iii) financial executives. Although all these three groups are interested in the financial conditions and operating results of an enterprise, the primary information that each seeks to obtain from these statements differs materially, reflecting the purpose that the statement is to serve. Investors desire primarily a basis for estimating earning capacity. Creditors (trade and financial) are concerned primarily with liquidity and ability to pay interest and redeem loan within a specified period. Management is interested in evolving analytical tools that will measure costs, efficiency, liquidity and profitability with a view to making intelligent decisions.

The significance of ratios varies for these three groups. Commercial bankers and trade creditors and the institutional lenders are mostly concerned with the ability of a borrowing enterprise to meet its financial obligations timely. As a result, they are more interested in ratios like the current ratio, acid-test ratio, turnover of receivables, inventory turnover, coverage of interest by the level of earnings, etc. Long-term creditors

would be interested in the working capital position of the borrower as an indication of ability to pay interest and principal in case earnings decline. They may also find valuable the ratios of total debt to equity, net worth to total assets, long-term debt to net working capital, fixed assets to net worth, fixed assets to long-term debt and fixed debt to total capitalisation. The number of times fixed charges are covered by earnings before interest and taxes will be of particular interest for such long-term creditors. Investors in shares are primarily interested in per share ratios like earnings per share, book value per share, market price per share, dividends per share, etc. They would also be interested in knowing the capitalisation rate (E/P ratio = Earnings per share/price per share ratio) which is the reciprocal of P/E ratio (price/earnings ratio) and also the dividend yield, i.e., D/P . For financial management the various ratios discussed subsequently are helpful which cover a period of years and the situation of competing companies in the same industry.

The discussion of each ratio covers the following aspects: the formula for the ratio; a numerical example (Exhibit 3); reference level (if any) consisting of a generally accepted rule of thumb; an explanation of details involved in calculating the ratio; and an indication of the information that a ratio can provide to the financial manager.

CLASSIFICATION OF RATIOS

Financial ratios can be classified under the following five groups: (i) Structural; (ii) Liquidity; (iii) Profitability; (iv) Turnover; and (v) Miscellaneous. The Balance Sheet and Profit and Loss Accounts of Hypothetical Ltd. (Exhibits 1 and 2) have been recast with a view to illustrating the computation of various ratios.

(i) Structural group

(a) *Funded debt to total capitalisation.* The term 'total' capitalisation comprises long-term debt, capital stock and reserves and surplus. The ratio of funded debt to total capitalisation is computed by dividing funded debt by total capitalisation. It can also be expressed as percentage of the funded debt to total capitalisation. No hard and fast rule can be set down as to what a proper relationship should be. Earning power of a company may justify a higher percentage. It is, however, necessary to note that a too heavy debt burden reduces the margin of safety for lenders, increases fixed charges upon earnings, decreases earnings available for distribution to shareholders, and in the case of continued inadequate or no profits may invite insolvency and force reorganisation.

(b) *Debt to equity.* Due care must be taken in the computation and interpretation of this ratio. The definition of debt takes two forms: one

includes the current liabilities while the other excludes them. The difference in the meaning of debt is confusing in general. The amount of debt that a firm can reasonably carry depends on varied factors. A public utility with stable earnings and favourable prospects can safely finance a much larger percentage of its assets with debt as against a manufacturer with an erratic record of profitability. Whether a particular ratio depicts a good or bad condition has to be concluded after due care.

(c) *Equity (net worth) to net fixed assets.* This ratio gives an indication of the extent to which equity capital is invested in net fixed assets. In case of net fixed assets being in excess of net worth, difficulties may arise to provide depreciation resulting in a reduction in profits. In addition, the more the shareholders' contribution is tied up in fixed assets, the less is the amount available for investment in current assets, which, in other words, means that creditors have contributed towards large proportion of the net fixed assets. The higher this ratio the less the protection for creditors. Where net fixed assets exceed net worth, it may be a signal for many industrial concerns which should plan for an additional equity capital.

(d) *Net fixed assets to funded debt.* This ratio acts as a supplementary measure to determine security for the lenders. A ratio of 2:1 would mean that for every rupee of long-term indebtedness, there is a book value of two rupees of net fixed assets. But book value and actual liquidating value may be greatly at variance and in interpreting this ratio, this fact must be borne in mind.

(e) *Funded (long-term) debt to net working capital.* This ratio is calculated by dividing the long-term debt by the amount of the net working capital. It helps in examining creditors' contribution to the liquid assets of the firm. Funded debt should not exceed net working capital for most industrial concerns; in fact, it should be less. If net working capital is less than funded debt, difficulty in meeting financial obligations is likely to arise over the long run.

(ii) Liquidity group

(a) *Current ratio.* The current ratio is computed by dividing current assets by current liabilities. Current assets normally include cash, marketable securities, sundry debtors (accounts receivables) and inventory; and current liabilities consist of sundry creditors (accounts payable) short-term loans and advances (including cash credit facilities taken from commercial banks, current maturities of long-term debts), current liabilities and provisions for taxes and other accrued expenses. This ratio is generally an acceptable measure of short-term solvency as it indicates

the extent to which the claims of short-term creditors are covered by assets that are likely to be converted into cash in a period corresponding to the maturity of the claim.

This relationship is of prime importance to the short-term creditor since it gives an indication of a borrower's ability to meet his current obligations. It should, however, be borne in mind that current assets are not the only source of funds to meet current liabilities. A firm can borrow from new creditors to repay the old.

In interpreting this ratio, consideration should be given to the proportion of the various components of current assets. A current ratio of 2:1 has long been considered generally satisfactory but indiscriminate use of this standard is unsound. This ratio varies from industry to industry and within the same industry from company to company and within the same company from season to season. One should be careful to determine acceptable standards within the industry in which the company operates.

(b) *Acid-test ratio.* This is also termed as quick ratio. It is determined by dividing "quick assets", i.e., cash, marketable investments and sundry debtors, by current liabilities. This ratio is a better test of financial strength than the current ratio as it gives no consideration to inventory which may be very slow-moving.

It is a supplementary measure of liquidity and places more emphasis on immediate conversion of assets into cash than does the current ratio. A quick ratio of 1:1 has usually been considered favourable since for every rupee of current liabilities there is a rupee of quick assets. But accounts receivables may not be convertible into cash at face value on a short notice. Like current ratio, a reasonable standard for the acid-test ratio varies from season to season in a company and from company to company in an industry.

(iii) Profitability group

(a) *Operating ratio.* It is calculated by dividing the total operating expenses by net sales and is expressed as a percentage. Total operating expenses include all costs except financing costs and income-tax. This is the most general measure of operating efficiency and is important to management in judging its operations.

(b) *Operating profit to sales.* The difference between the operating ratio and 100 is the ratio of operating profit (earnings before interest and taxes) to net sales. The lower the operating ratio, the higher the margin of profit. While this ratio serves as an index of overall efficiency, its usefulness is limited by its vulnerability to changes resulting from accounting

decisions. For instance, a high ratio may signify nothing more than a management policy of not providing necessary maintenance and depreciation. This ratio is very useful for purposes of internal analysis in detecting the areas of difficulty.

(c) *Net profit to sales.* This ratio is also called as the net profit ratio and net profit margin. It is determined by relating the net income after taxes to the net sales for the period and measures the profit per rupee of sales. This percentage, in conjunction with the operating ratio, throws light on the importance of a company's non-operating activities.

(d) *Coverage of interest payment.* This ratio is determined by dividing interest charges on long-term borrowings and dividend on preference shares into the company's earnings before interest and taxes (EBIT) for the period. This is stated as:

$$\frac{\text{EBIT (Earnings before interest and taxes)}}{\text{Interest}}$$

The numerator indicates the extent of earnings available for the payment of interest. This ratio is used mainly as a measure of the firm's ability to meet its interest obligations. Sinking fund payments or instalments due for repayment of capital can be added to the interest charges in order to determine the capacity of the company to serve its debt obligations. This can be stated as:

$$\frac{\text{EBIT (Earnings before interest and taxes)}}{\text{Interest} + \text{sinking fund payments } (1/1-t)}$$

where t stands for the tax rate payment by the company on its income.

(e) *Return on investment.* This relationship can be examined under two heads: (i) EBIT/Capital Employed; and (ii) Net Profit to Net Worth.

This ratio examines the relationship between the size of operating profits (EBIT) and the capital employed. It is one of the most basic ratios. It can be computed in a number of ways in relation to either total assets, capitalisation (equity capital plus long-term debt) or owners' equity. From the management point of view, the meaningful relationship is between the earnings before interest and taxes and the capital employed. This relationship is expressed as EBIT/Capital Employed and provides a good indication of the profitability of the capital employed in the firm. There is a variation of this ratio by dividing the EBIT by capitalisation and not capital employed. This refinement emphasises the earnings on the permanent capital as distinguished from the capital supplied by short-term creditors. Some analysts adjust this measure by using average capital employed during the year while others prefer ending balances.

For determining return on the investment of the equity holders in a company, the afore-mentioned ratio has to be modified. For the shareholders, the relationship between the net profits and the net worth is more meaningful. For calculating this ratio, the cost of borrowed capital and income tax are deducted from earnings. It is a fair measure for appraising the earning power of the equity investment, i.e., net worth. However, the accounting and operating policies of a firm influence the reliability of this measure. In addition, shareholders frequently relate the earnings available to them to the market value rather than to book value of their shares.

(iv) Turnover group

(a) *Assets turnover*. This ratio is also termed as capital turnover. It is calculated by dividing net sales by the net tangible assets (capital employed), i.e., net fixed assets plus current assets. Some analysts prefer to use gross fixed assets due to the varying depreciation policies which make comparisons difficult. A high ratio suggests management's ability to make a good use of its tangible assets but low ratio may be caused by large outlays for fixed assets. Results of this ratio should be interpreted in the light of other factors in operation.

(b) *Net working capital turnover*. It is computed by dividing average net current assets into net sales. It helps in measuring the efficiency of the employment of working capital. Generally speaking, the higher the turnover, the greater the efficiency and the larger the rate of profits. However, a very high ratio may signify a potentially dangerous situation of the shortage of working capital.

(c) *Receivables turnover (collection period)*. This ratio measures the relationship between credit sales during a particular accounting period and the average receivables (sundry debtors) outstanding during the period. This ratio is also called the collection ratio or book debts to sales ratio. It is expressed in two forms: (i) net sales/average amount of accounts receivables; and (ii) average collection period after calculating average daily sales (sales/days) and dividing accounts receivables by sales per day. A quicker way of obtaining this very result is to calculate the percentage of receivables to sales for the period and to apply this percentage to the number of days in the period. Usually, for this purpose the number of days is 360 instead of 365. In order to concentrate upon credit policy, cash transactions (if the data are available) should be excluded from net sales in computing this ratio.

The average collection period is a rough measure of the overall quality of the accounts receivables and of the credit policies of a firm. However, care should be taken in interpreting this figure if sales fluctuate

widely in a given period.' Further, a firm selling both for cash and on credit presents a problem and the credit sales should be separated from the cash sales.

The collection ratio is a good supplementary test of the validity of the current ratio. If it is substantially in excess of the usual trade terms in the industry, it gives a signal that many of the receivables may never be collected. Difficulty can be caused by the excessive amount of working capital locked up in receivables. In such cases, the analyst should prepare a detailed ageing statement of accounts receivables by classifying accounts receivables into groups by difference of sales in monthly or appropriate time intervals (depending on the credit terms) to see which portion is current and which is overdue. A ratio analysis of overdue accounts in proportion to outstanding accounts from selected periods can then be prepared. Care should be taken that all cash sales are excluded. However, this information is not available to an external analyst.

This measure can be compared to the credit terms granted to customers in the industry concerned and any major deviation from this norm would be a warning signal. The promptness with which accounts are collected is an indicator of the effectiveness of the credit department as well as a reflection of the quality of the accounts receivables.

(d) *Inventory turnover.* There are two ways of presenting the relationship of inventory to sales or cost of goods sold :

- $$(i) \frac{\text{Sales}}{\text{Ending inventory}}$$
- $$(ii) \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

(i) *Sales/Ending inventory.* This ratio has got two limitations: (a) ending inventory figure may not be representative of the level of inventory throughout the year; and (b) investment in inventory should be related to the cost of goods sold as against sales which contain the element of profits over and above the recorded cost of goods. Thus, the relationship is not entirely that of comparable figures and any comparative studies of this ratio between companies may be misleading through differences in the gross margin taken on sales.

(ii) *Cost of goods sold/Average inventory.* This relationship expresses the frequency with which average level of inventory investment is turned over through operations. The higher the inventory turnover, the larger the amount of profit, the smaller the amount of capital tied up in inventory and the more current the merchandise stock. Moreover, a firm

with a high turnover has a great competitive advantage as it can afford to sell its merchandise at a lower price because increased sales volume may yield a larger total profit even though the margin of profit per unit is slightly less.

The inventory turnover is a valuable measure of selling efficiency and inventory quality. A low inventory turnover may be due to a variety of reasons like poor merchandise, over-valuation of closing inventory, a large stock of unsaleable goods, over-buying, an anticipated future increase in sales, etc. In the last case, the low inventory turnover may be desirable in terms of its effect on sales and profits. On the other hand, a substantially higher rate of inventory turnover may disclose conservative pricing of closing inventory, inventory valuation at a point when it is unusually low, a real shortage of inventory for required sales, a contemplated reduction on sales, etc. It is thus worth noting that a high inventory turnover may not by itself be desirable.

(v) Miscellaneous group

Under this head, we can examine the following ratios: (a) earnings-price ratio; (b) price-earnings ratio; (c) dividend yield; and (d) pay-out ratio.

(a) *Earnings-price ratio.* This ratio is also termed as earnings yield. It is computed by dividing earnings per share by market price per share. Earnings per share are obtained by dividing the total earnings by the number of shares outstanding. There are, however, difficulties in finding out the market price. Should it be on a certain day or an average of the highest and the lowest market price over a period? This ratio is very useful for the prospective investors in a company.

The earnings-price ratio is computed by dividing earnings per equity share by market price per share and is expressed as a percentage which earnings bear to price. The price-earnings ratio is its reciprocal and is represented by the multiple by which earnings are multiplied to arrive at the market price. The market price of an equity share is influenced by many factors like the dividend and earnings rate and record, stability and rate of growth of earnings and sales, credit rating and financial strength, managerial competence and efficiency, competitive position of the company, etc. A low percentage or a high multiplier, therefore, may reflect a high rate of growth in the past. The equity shares of a well established company with a promising future outlook usually sell at a lower percentage or a higher multiple of current earnings.

(b) *Price-earnings ratio.* This is the reciprocal of earnings-price ratio discussed above. This ratio indicates the times the earnings per share are

covered by its market price.. This ratio is useful in financial forecasting. This ratio may show great diversity between one company and another as share prices fluctuate widely. It is a rule of thumb that equity shares in industrial companies should sell at 10 times of earnings, *i.e.*, earnings-price ratio should be 10 per cent; the percentage may be lower or the multiplier higher in the case of companies commanding investment prestige and showing a progressive increase in earning power. By comparing the earnings-price percentages or multiplier at which shares are selling in relation to earnings, it is determined whether shares are under-priced or over-priced.

(c) *Dividend yield.* This ratio measures relationship between the dividend per share and the market price. For an investor, not only the amount of this ratio is important but also the extent of coverage of this ratio by the earnings yield.

(d) *Pay-out ratio.* This ratio is calculated by dividing the dividend per share by the earnings per share. The attractiveness of investments depends on its earning power and profitability over a period of time. The rate of earnings per share is the best single measure of profitability. It reflects productivity of investment. As earnings fluctuate from year to year, they have to be studied over a number of years covering periods of depression and prosperity in order to find out a trend after making due allowance for abnormal factors. The rate of earnings per share also indicates the dividend protection available to equity shares which is particularly significant in a growth situation.

This ratio expresses the amount of equity dividend as a percentage of earnings available for equity shares after meeting all charges. A ratio lower than 100 per cent indicates retention of earnings in the firm whereas a ratio higher than 100 per cent indicates distribution of a part of reserves by way of dividends. The pay-out ratio may be relatively lower when earnings are utilised for financing growth or expansion. The pay-out ratio is a test of managerial ability and reputation. But in analysing growth shares, the pay-out ratio may not be important because shares primarily sell on the basis of earnings as against dividends.

STANDARDS FOR COMPARISON

For making a proper use of ratios, it is essential to have fixed standards for comparison. A ratio by itself has very little meaning unless it is compared to some appropriate standard. Selection of proper standards of comparison is a most important element in ratio analysis. The four most common standards used in ratio analysis in financial management are: absolute, historical, horizontal and budgeted.

Absolute standards are those which become generally recognised as being desirable regardless of the type of company, the time, the stage of business cycle, or the objectives of the analyst. Various rules of thumb have been suggested in this direction; for example, 2 : 1 for a current ratio. In fact, absolute standards are not much meaningful and there can hardly be an independent absolute standard which is desirable in all cases.

Historical (also known as internal) standards involve comparing a company's own past performance as a standard for the present or future. But this standard may not provide a sound basis for judgment as the historical figure may not have represented an acceptable standard. Further, care has to be taken if the accounting practices have changed regarding depreciation and valuation of assets. At best the comparison between a current figure and the historical figure of the same company shows only that the current period is better or worse than the past.

In case of *horizontal* (external) standards, one company is compared with another or with the average of other companies of the same nature. But the problem in utilising industry ratios is that no two companies are similar. Variations in accounting methods lead to significant differences in ratios. Moreover, variability of product-mix, geographic location, corporate objectives and other conditions under which business operates lead to a lack of comparability. Standards developed from other company's data or from industry data are useful only in indicating areas where *further* analysis and study should be made.

The *budgeted* standard is arrived at after preparing the budget for a period. Ratios developed from actual performance are compared to the planned ratios in the budget in order to examine the degree of accomplishment of the anticipated targets of the firm. Budgeted standards can be very useful in financial analysis particularly when they are evolved after taking into account the prevailing conditions and the specific company situation. External analysts have difficulty in using budgeted standards and have to rely on historical or horizontal standards. Further, the budgeted figures may not have been set very carefully. Moreover, comparison can be no more valid than the target figures themselves. The targets are usually set on the basis of certain assumptions as to the conditions that would be prevailing during the period. If these assumptions turn out to be incorrect, the target figures cannot be a good measure of results. If due to a recession or other economic phenomenon beyond the control of management the profits are lower than the amount budgeted, it cannot reasonably be said that the difference between the actual and the budgeted profit shows poor performance. Despite these limitations, the budgeted standard has fewer inherent difficulties than either the historical standards or the hori-

zontal standards. But in fixing the budgeted standards, management has to pay due attention to historical as well as horizontal standards.

Limitations of ratio analysis

Limitations of ratio analysis arise due to difficulties in making comparisons. While reasonably accurate reports of actual performance are possible, it is always a challenging job to find an adequate standard. The conclusions drawn from the ratios can be no better than the standards against which they are compared. Further, when one says that performance is good or bad, better or worse, there is an implicit or explicit comparison of actual performance to some standard. The standards of comparison, discussed earlier, can be thought of as a quality range rather than as a single number. If actual performance is within this range, it may be regarded as satisfactory but when it begins to go outside the range, it is an indication of unsatisfactory situation.

② It is difficult to evaluate the differences in the factors that affect one company's performance in a particular year as compared with that of another year and that of another company. This task becomes more difficult when comparison is made of one company with another when they are of substantially different size, age and diversified products.

③ While making comparisons of ratios, due allowance should be made for changes in price level. A change in price level can seriously affect the validity of comparisons of ratios computed for different time periods and particularly in case of ratios whose numerator and denominator are expressed in different kinds of rupees. Many asset amounts are expressed as unexpired historical rupee costs. The fixed assets of one company may be purchased at a time when prices are low or they may be fully depreciated. If these fixed assets are compared with the fixed assets of other companies which purchased them at a time of higher prices or if they were relatively new, then the return on investment ratio for the company that carried its assets at a low book value would be much higher as compared to that of other companies.

④ Comparisons are also made difficult due to differences in definition. The terms like gross profit, operating profit, net profit, etc., have not got precise definitions and there is a considerable diversity in practice as to how they should be measured. Difficulty may further arise due to difference in data collection.

⑤ A balance sheet may fail to reflect the average or typical situation as it is prepared as of one moment of time. It ignores short-term fluctuations in assets and equities that may occur within the period covered by the two balance sheet dates. A company that is analysing its own data can study the seasonal movements by using monthly rather than annual balance sheets.

Such balance sheets are usually not available to the outsiders. It should also be recognised that companies often take resort to window dressing which may not be visible to an outsider and affect the validity of comparison.

Various differences are found among the accounting methods used by different companies which variously affect the comparability of financial statements. Methods of recording and valuing assets, write-offs, costs, expenses, etc. differ from company to company. The methods for establishing inventory values also leave great freedom to management. The balance sheet figures for assets need not correspond to the value of the company either as a going concern or in liquidation. Similarly, liabilities shown in the balance sheet may be incomplete or understated. It thus becomes a problem to compare one company with the other. Further, financial statements are based upon past performance and past events which can only be guides to the extent they can reasonably be considered as clues to the future. Ratio analysis, thus, provides guides and clues in detecting trends towards better or worse performance. A lot of skill and experience are required in the interpretation of such trends and deviations.

As ratios are simple to calculate and easy to understand, there is a tendency to over-employ them. While such statistical approach stimulates thinking, it is also likely to lead to the accumulation of a mass of data; if due care is not taken, that might obscure rather than clarify relationships. Further, ratios do not provide a definite answer to financial problems. There is always the question of judgment as to what significance should be given to the figures. While some standards of reference and sources of background material may be found useful in this connection, in the final analysis one must rely upon one's own good sense in selecting and evaluating the ratios. The fact that there are no mechanical solutions to business problems should not be overlooked.

Return on investment: an integral ratio

(There are certain close relationships between ratios which help an analyst to have a fairly integrated assessment of the business situation.) For instance, the ratio of return on investment has been found as the end-product of a series of statistical measures representing the various phases of a company's operations that contribute to this ratio. The return on investments is the product of earnings as a percentage of sales and the turnover of assets that produce these sales. Return on investment = $\frac{\text{Earnings}}{\text{Investment}}$

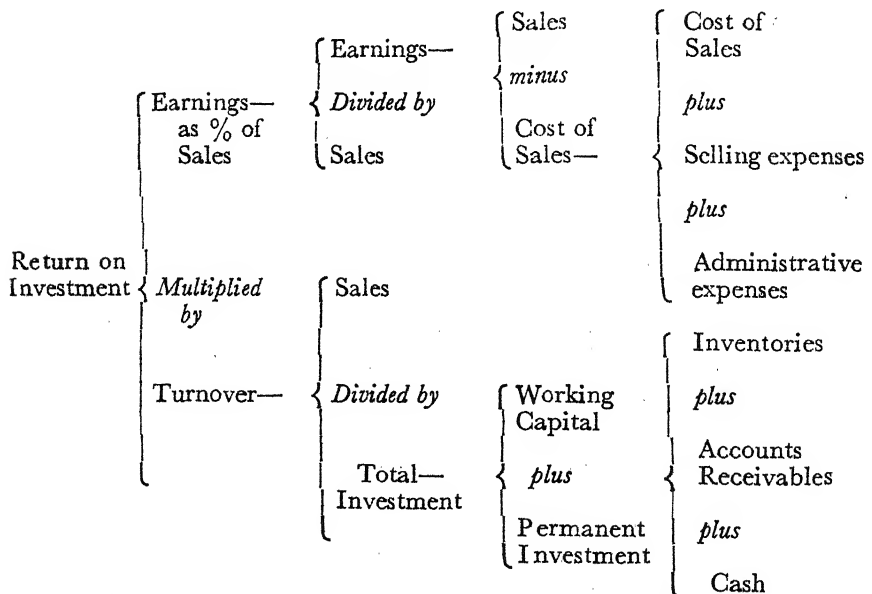
$$= \frac{\text{Earnings}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital Employed (net tangible assets)}}$$

A group of ratios intimately connected with each other can give a fuller answer than any one of the three alone. This grouping of ratios is also helpful in investigating the financial position of a firm not only for analysing its current financial position but also for formulating the financial position for the future.

Du Pont Control Chart. A system for management control has been designed which is popularly known as Du Pont Chart System of Control. This system utilises the ratio inter-relationships to provide an important series of charts and indicators calling management's attention to desirable and undesirable trends of corporate performance. Once a company has developed standards of performance regarding the various ratios, it becomes easy to judge performance changes with such a system.

Figure 1

*Du Pont Control Chart: Relation of Factors
Affecting Return on Investment*



An important objective of the Du Pont System (Figure 1) is to isolate the elements entering into the final figure in order to appraise the individual factors affecting performance. It may be noted that the analytic chain in this chart is developed along two tiers. The first sequence starts with turnover, determined by dividing sales by total investment; total investment represents current assets plus net fixed assets. Current assets include inventories, accounts receivables and cash. In the second tier, the

sequence starts with earnings as a percentage of sales, calculated by dividing earnings by sales; earnings equal sales less cost of sales, and cost of sales includes cost of goods sold, selling expenses, administrative and general expenses.

The chart provides management with an overall perspective of the financial relationships leading to the earnings rate on investment. Changes in any important segment of this structure will influence the final investment returns. The two-tier approach concentrates attention on the separate forces contributing to profits. Improvement can be accomplished either through more effective use of available capital, measured by the turnover sequence or through a better relationship between sales and costs, measured by the profit margin sequence. The same rate of return is achieved by either a low profit margin and turnover or a high margin and low turnover.

For providing standards of evaluation, calculations are made of the ratios of return on investment, assets turnover and profit margins for comparable companies. Appropriate breakdowns can also be established for individual units within the same organisation for internal comparisons.

The return on investment has been used as a measure of performance and a means of evaluating alternative investment opportunities. However, the approach is rearward and the data from which the ratio is calculated are applicable to specific past periods. To be consistent, it is necessary that the earnings in the numerator of the ratio should flow from the investment base used in the denominator. But, in practice, this consistency is not usually observed.

Limitations of ROI. The return on investment approach for evaluating managerial performance suffers from serious limitations. RCI is a fraction, with earnings as numerator and investment as denominator. Both the numerator and the denominator to the fraction are subject to a wide range of arbitrary decisions in determining the amount of earnings and investment. Either the numerator or the denominator may include an allocation of sunk costs which have nothing to do with current operations. There have been many occasions where the use of ROI motivated the executives to take incorrect decisions.

ROI emphasizes the generation of short-term profits and the most direct route towards profit improvement may be to cut down costs like research and development and sales promotion. If these costs are found out of line this may be the best action. But often it is not the case.

ROI places an emphasis on improvement of ratio rather than improvement of rupee profit which may deprive share-holders of maximum returns through increased rupee profits. For instance, return on invest-

ment is inclined to cultivate a short range thinking irrespective of overall corporate objective. Management may be tempted to defer training programmes or to neglect maintenance of fixed assets with a view to increasing the ROI ratio in the short run.

ROI is a poor measure of performance because many extraneous and non-controllable factors enter the picture. Often the present return is the result of the wisdom or lack of it of the past managers rather than of the incumbents.

The climate for control is adversely affected by the tendency towards conservatism introduced by ROI. Taking of risks is discouraged. Further, ROI gives undue significance to capital resources *vis-a-vis* other inputs in profit planning.

In a decentralised company there may be wide variations in the rate of return expected from different divisions. A divisional manager with a high profit objective may not want to undertake an expansion project that may lower his rate of return. On the other hand, if his profit objective is low he will be willing to undertake an expansion project that may not result in a satisfactory profit from the overall point of view of the company.

Divisional managers with high rates of return are likely to have an attitude that they do not require any improvement in the profit position because the actual return on investment in their respective divisions may make them believe that it is optimum. High/low profit may result from fortuitous circumstances for which divisional managers may not be responsible.

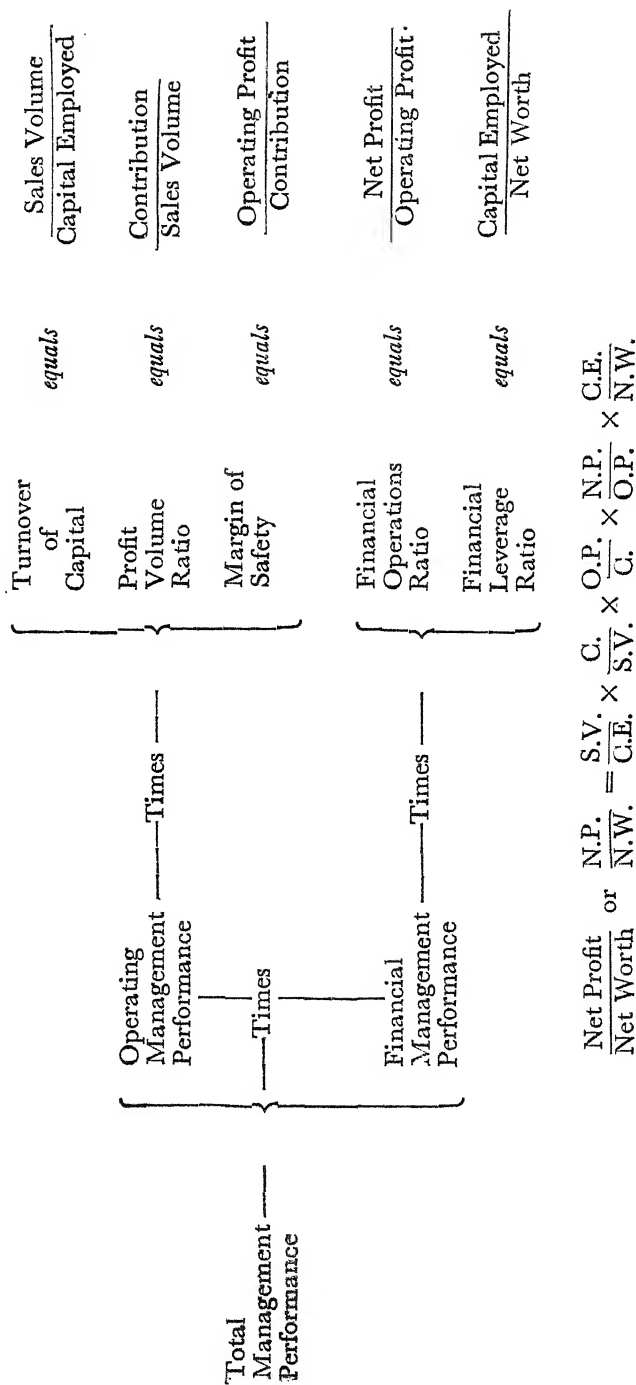
Taking into account all these considerations, ROI becomes so imprecise that it presents more problems than it solves in measuring management performance. It requires replacement by a budgetary control system which is based on establishing goals, analysing management performance and measuring it against the targeted performance through the study of management performance ratio discussed hereafter.

Management Achievement Chart and Profit Performance Chart.¹ The Management Achievement Chart (Figure 2) and Profit Performance Chart (Fig. 3) have been designed after making modifications in the Du Pont Chart.² They help not only in analysing the management performance but also in establishing goals and measuring perfor-

¹ See author's article "Ratio Charts for Top Management, *Indian Management*, May-June, 1968, pp. 44-50.

² Kenneth R. Rickey, "How Accountants can Help Management Manage", *NAA Bulletin* (July, 1963, pp. 25-36).

Figure 2

Management Achievement Chart

mance against them.¹ The Management Achievement Chart has two major sequences which are combined to indicate the total management performance. One section relates to operating management and the other to the financial management. Total management performance is the net profit as a percentage of the shareholders' investment (net worth). It represents the performance of the entire management team with the chief executive responsible. Operating management performance (usually the responsibility of the general manager) is the product of turnover of capital, margin of safety and profit/volume ratio. This breakdown can indicate where a trouble spot lies when the operating management performance falls below the pre-determined goal. The short-cut computation of this ratio is to divide operating profit by capital employed. But for better decision making, it is necessary that all these three relationships should be examined separately before arriving at the final figure.

Turnover of capital is calculated by dividing sales volume by capital employed. Margin of safety is computed by dividing the operating profit (profit earned by the operating management, *i. e.*, earnings before interest and taxes—EBIT) by contribution (sales-variable costs). Margin of safety is the percentage to which sales can drop off before the break-even point is reached. The profit-volume ratio is the percentage that is made on each rupee of sales before deduction of fixed costs, financing costs and taxes. This is an important ratio as it is the amount which is made on sales after the break-even point is reached. This ratio is calculated by dividing profit contribution by sales volume.

The chart covers the following five basic ratios.²

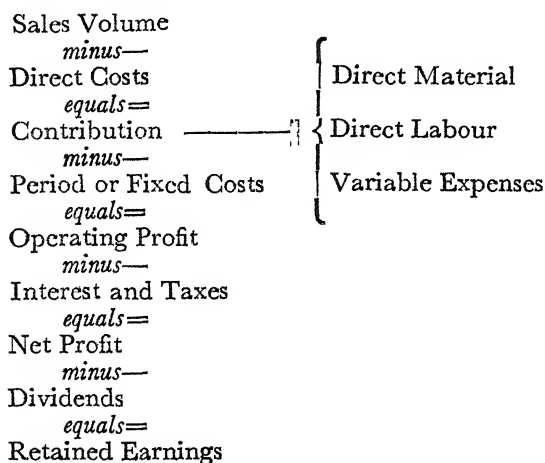
- | | |
|---|------------------------------|
| (1) $\frac{\text{Sales}}{\text{Capital Employed}}$ | (Capital Turnover Ratio) |
| (2) $\frac{\text{Contribution}}{\text{Sales}}$ | (Profit Volume Ratio) |
| (3) $\frac{\text{Operating Profit}}{\text{Contribution}}$ | (Margin of Safety Ratio) |
| (4) $\frac{\text{Net Profit}}{\text{Operating Profit}}$ | (Financial Operations Ratio) |
| (5) $\frac{\text{Capital Employed}}{\text{Net Worth}}$ | (Financial Leverage Ratio) |

¹ For having a better comprehension of the Management Achievement Chart first refer to Profit Performance Chart (Figure 3).

² Capital employed means net fixed assets plus current assets, and net worth includes equity capital plus reserves and surplus. To have a clear understanding of the other terms used in these ratios, reference should be made to the Profit Performance Chart (Figure 3).

Financial management achievement (responsibility of the financial executive) is measured by a ratio which is the product of the financial operations ratio and the financial leverage ratio. The financial operations ratio is calculated by dividing net profit by operating profit. Net profit is arrived at after making adjustments for interest, taxes, profit or loss on sale of securities, interest and dividend income, and any other transaction of a purely financial nature. The financial leverage ratio is calculated by dividing the capital employed by net worth. A large amount of debt would give a high figure for this ratio. Corporate financial policy determines the range of this ratio. Within this range, financial executive can operate to get the maximum return on the shareholders' equity by having an intelligent debt-equity mix.

Figure 3. *Profit Performance Chart*



There is another connection between the financial operations ratio and the financial leverage ratio. Interest on debt reduces the financial operations ratio but at the same time a larger use of debt increases the leverage ratio. The product of these two ratios provides a good index of the performance of financial management.

Once the goals on the management performance chart have been agreed upon, the accounting and finance department can translate them into objectives making each manager responsible for controlling his costs. Management achievement chart is thus the responsibility accounting in action.

Published sources of ratio analysis. *The Economic Times* publishes studies on finance of companies in different industries from time to time. In these studies, the following ratios are included :

- (1) Net worth as percentage of total capital employed;
- (2) Inventory as percentage of sales;
- (3) Gross profit as percentage of total capital employed;
- (4) Profits after tax as percentage of net worth;
- (5) Tax provisions as percentage of profit before tax (PBT);
- (6) Dividends as percentage of profit after tax (PAT);
- (7) Retained earnings as percentage of profit after tax (PAT);
- (8) Dividends as percentage of paid-up capital;
- (9) Dividends as percentage of net worth;
- (10) Yield rate (dividend yield); and
- (11) Earnings rate (capitalisation rate).

In making use of these ratios in order to have a comparative study of the performance of different companies, one should bear in mind the limitations and difficulties of comparison discussed earlier.

The Economic Times ratios can be used by financial executives, lending institutions and investors. A financial executive would be interested in using the following ratios: inventory as percentage of sales, gross profit as percentage of capital employed. Other ratios may not be very meaningful for him. A lending institution may find the following ratios useful: net worth as percentage of capital employed, gross profit as percentage of sales and total capital employed, retained profits as percentage of profit after tax. It may have to calculate the coverage of interest charges by gross profit for which a separate ratio is not given. An investor may find the following ratios useful for decision making regarding investment: net worth as percentage of total capital employed, profits after tax as percentage of net worth, dividends as percentage of profits after tax, dividend as percentage of paid-up-capital, dividends as percentage of net worth, yield rate and earning rates.

The Economic Times also publishes an annual study of the finances of 101 public limited joint companies. This study includes the following ratios: gross profits as percentage of sales, gross profits as percentage of total capital employed, profits after tax as percentage of net worth, dividends as percentage of net worth, tax provision as percentage of profits before tax, dividends as percentage of profits after tax, retained profits as percentage of profits after tax, earning rate (*i.e.*, earnings as percentage of market price), dividend yield (*i.e.*, dividends as percentage of market price), number of times equity dividend is covered by earnings. These ratios are useful more for investors and lending institutions than for financial executives.

The Economic and Scientific Research Foundation recently published a study on the performance of Top 200 Companies making a com-

parative study regarding increase (decrease) in sales, net assets, net worth and net profit in 1964 over 1963.

The Stock Exchange Official Directory (a publication of the Bombay Stock Exchange) publishes comprehensive information on the financial position and operations of the companies listed on the recognised stock exchanges. It also covers important unlisted public limited companies as well as several prominent government companies and statutory corporations. The annual reports of the companies constitute the most important source of operating and statistical data for judging their working results and financial position. The Official Directory is primarily based on these reports which provide the raw material.

The Directory analyses the operating results, the financial position and progress of each company for a period of 10 years. It provides the following: (i) comparative financial statements for 10 years; (ii) common size financial statements for 10 years; (iii) trend percentages; (iv) ratios and items selected from the balance sheets, profit and loss statements and from both the statements taken together; (v) equity share data for 10 years; and (vi) graphs and charts of equity prices, net sales, net profit and equity dividend. There are also supplementary background material compiled from annual reports as well as a tabular history of capital structure of each company, in most cases from its inception.

For each balance sheet and profit and loss statement, complete percentage analysis is given in the form of common size statement. For each year, a set of financial ratios has been worked out. The related ratios are grouped together under seven main heads: (a) stability; (b) credit; (c) turnover; (d) profitability; (e) appropriation; (f) capitalisation; and (g) coverage of senior charges.

Stability Ratios:

- (a) Proprietary Ratio
- (b) Net Block to Net Worth Ratio
- (c) Total Liabilities to Net Worth Ratio

Credit Ratios:

- (a) Current Ratio
- (b) Quick Ratio
- (c) Working Capital

Turnover Ratios:

- (a) Net Sales to Total Assets
- (b) Net Sales to (Net Worth + Debentures)
- (c) Sundry Debtors to Average Daily Sales

Profitability Ratios :

- (a) Gross Profit to Net Sales %
- (b) Operating Net Profit to Net Sales %
- (c) Pre-tax Profit to Net Sales %
- (d) Net Profit to Net Sales %
- (e) Return on Total Capital Employed %
- (f) $\frac{(\text{Net Profit} + \text{Debenture Interest})}{(\text{Net Worth} + \text{Debentures})} \%$
- (g) Net Profit to Total Assets %

Appropriation Ratios :

- (a) Depreciation Provision to Gross Block %
- (b) Depreciation Provision to Written Down Value of Block %
- (c) Tax Provision to Pre-tax Profit %

Capitalisation Ratios :

- (a) $\frac{(\text{Preference Capital} + \text{Debentures})}{\text{Equity Capital}} \%$
- (b) $\frac{\text{Debentures}}{(\text{Net Worth} + \text{Debentures})} \%$
- (c) $\frac{\text{Preference Capital}}{(\text{Net Worth} + \text{Debentures})} \%$
- (d) $\frac{(\text{Equity Capital} + \text{Reserves})}{(\text{Net Worth} + \text{Debentures})} \%$

Coverage of Senior Charges :

- (a) Number of Times Debenture Interest Covered
- (b) Number of Times Preference Dividend Covered.

To illustrate the growth of equity shares, the balance sheet and profit and loss statement figures have been analysed on a per equity share basis, such as net sales per share, earnings per share, e/p ratio, earnings distributed, dividend per share, dividend percentage, yield per cent, book value per share and net asset per rupee of equity at market price. Such per share figures have been worked out for each year over a period of 10 years. The per share data for each year is computed in terms of capitalisation of that year and not on the basis of the current number of shares. For comparative purposes, it is necessary that adjustments should be made for rights or bonus issues in different years as shown in the tabular history of the capital structure of the company.

Exhibit 1

Hypothetical Limited

Balance Sheet as at March 31

(Rupees in lakhs)

				1975	1974
<hr/>					
Share Capital :					
Preference	...	...	...	40	40
Ordinary	...	...	...	80	80
Reserves and Surplus		...	...	106	82
Long-term Loans	...	...	...	96	113
Short-term Credit	...	...	...	36	47
Current Liabilities and Provisions			...	46	39
				<hr/> 404	<hr/> 401
Fixed Assets	...	...	...	412	375
Less: Depreciation		...	...	<hr/>203	<hr/> 167
Net Fixed Assets	...	...	...	209	208
Current Assets :	...	...	...	171	169
Inventory	...	...		93	90
Sundry Debtors	...	...		63	44
Cash and Marketable Securities				1	9
Loans and Advances	...			14	26
Technical know-how	...		...	24	24
				<hr/> 404	<hr/> 401
<hr/>					

Average Market Price of ordinary share for 1974-75 = Rs. 83.

Exhibit 2

Hypothetical Limited

Profit and Loss Account for the year ended March 31

(Rupees in lakhs)

				1975 Rs	1974 Rs
Net Sales	...	...	...	308	261
Cost of Goods Sold	...	...	...	205*	188
Gross Profit	...	...	...	103	73
Administrative and selling expenses			...	-21	-18
Operating Profit	...	...	...	82	55
Other Income	...	...	...	+ 1	+ 3
Earnings before Interest and Taxes (EBIT)				83	58
Interest	...	...	...	-13	-15
Taxes	...	...	...	-30	-20
Net profit	...	...	...	40	23
Dividends :	...	...	...	-16	-16
Preference	...	...	...	3	3
Ordinary	...	...	...	13	13
Retained Earnings	...	...	...	24	7

*Inclusive of depreciation for Rs 36 lakhs.

Exhibit 3

Computation and Classification of Ratios for 1975
(x=times)

1. *Structural Group*

$$(a) \text{ Funded Debt to Total capitalisation} = \frac{\text{Long-term Loans}}{\text{Total Capitalisation (Share Capital + Reserves and Surplus + Long-term Loans)}} = \frac{96}{327} = .29x$$

(b) Debt to Equity :

$$(i) \text{ Total Debt to Equity} = \frac{\text{Long-term Loans + Short-term Credit + Current Liabilities and Provisions}}{\text{Equity Share Capital + Reserves and Surplus}} = \frac{96+36+46}{80+106} = .95x$$

$$(ii) \text{ Long-term Debt to Equity} = \frac{\text{Long-term debt}}{\text{Equity Capital + Reserves and Surplus}} = \frac{96}{186} = .52x$$

$$(c) \text{ Net Worth to Net Fixed Assets} = \frac{\text{Net Worth}}{\text{Net Fixed Assets}} = \frac{186}{209} = .89x$$

$$(d) \text{ Net Fixed Assets to Funded Debt} = \frac{\text{Net Fixed Assets}}{\text{Funded Debt}} = \frac{209}{96} = 2.18x$$

$$(e) \text{ Funded Debt to Net Working Capital} = \frac{\text{Long-term loans}}{\text{Net Working Capital}} = \frac{96}{89} = 1.08x$$

2. *Liquidity Group*

$$(a) \text{ Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities and Provisions + short-term credit against inventory}} = \frac{171}{82} = 2.09x$$

$$(b) \text{ Acid-test Ratio} = \frac{\text{Cash and Marketable Investments, Sundry Debtors, loans and advances}}{\text{Current Liabilities and provisions}} = \frac{78}{46} = 1.70x$$

3. Profitability Group

		Operating Expenses (Cost of Goods Sold + Adm. & Selling Exp.)		
(a) Operating Ratio	=	$\frac{\text{Net Sales}}{\text{Net Sales}}$	$\times 100 = \frac{205+21}{308} \times 100$	$= 76.6\%$
(b) Operating Profit to Sales	=	$\frac{\text{Operating Profit}}{\text{Net Sales}}$	$= \frac{82}{308}$	$= 27.1\%$
(c) Net Profit to Sales	=	$\frac{\text{Net Profit}}{\text{Net Sales}}$	$\times 100 = \frac{40}{308} \times 100$	$= 9.7\%$
(d) Coverage of Interest Payment	=	$\frac{\text{Earning Before Interest and Taxes}}{\text{Interest}}$	$= \frac{83}{13}$	$= 6.4x$
(e) Return on Investment	= (i)	$\frac{\text{EBIT}}{\text{Capital Employed}}$	$\times 100 = \frac{83}{380} \times 100$	$= 21.8\%$
		Net Profit after Preference Dividend		
	= (ii)	$\frac{\text{Net Worth}}{\text{Net Worth}}$	$= \frac{37}{186}$	$= 20\%$

4. Turnover Group

(a) Assets Turn-over (Capital Turnover)	=	$\frac{\text{Net Sales}}{\text{Net Fixed Assets} + \text{Current Assets}}$	$= \frac{308}{380}$	$= .81x$
(b) Net Working Capital Turn-over	=	$\frac{\text{Net Sales}}{\text{Net Working Capital}}$	$= \frac{308}{89}$	$= 3.46x$
(c) Receivables Turnover (Collection Period) =				
	(i)	$\frac{\text{Sundry Debtors}}{\text{Net Sales}} \times 100$	$= \frac{63 \times 100}{308} = 20.45\%$	of 360 days $= 74$ days
	(ii)	$\text{Sales per day} = \frac{\text{Sales}}{\text{Days}}$	$= \frac{308}{360} = .85$	
		$\text{Collection Period} = \frac{\text{Sundry Debtors}}{\text{Sales per day}}$	$= \frac{63}{.85}$	$= 74$ days
(d) Inventory Turnover	= (i)	$\frac{\text{Sales}}{\text{Ending Inventory}}$	$= \frac{308}{93}$	$= 3.3x$

$$= (ii) \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}} = \frac{205}{\frac{1}{2}(93+90)} = 2.24x$$

$$= (iii) \text{ In terms of months} = \frac{12}{2.24} = 5.4 \text{ months}$$

5. Miscellaneous Group

$$(i) \text{ Earnings per share (EPS)} = \frac{\text{Net Profit after Preference Dividend}}{\text{No. of outstanding Ordinary shares}} = \frac{37}{1.6} = \text{Rs } 23.1 \text{ per share (lakhs)}$$

$$(ii) \text{ Dividends per share (DPS)} = \frac{\text{Dividends for Ordinary Shares}}{\text{No. of outstanding Ordinary shares}} = \frac{12.8}{1.6} = \text{Rs } 8 \text{ per share (lakhs)}$$

$$(a) \text{ Earnings-price ratio} = \frac{\text{EPS}}{\text{MP}} = \frac{23}{83} = 27.7\%$$

$$(b) \text{ Price-earnings ratio} = \frac{\text{MP}}{\text{EPS}} = \frac{83}{23} = 3.6x$$

$$(c) \text{ Dividend-yield ratio} = \frac{\text{DPS}}{\text{MP}} = \frac{8}{83} = 9.6\%$$

$$(d) \text{ Pay-out ratio} = \frac{\text{DPS}}{\text{EPS}} = \frac{8}{23} = 34.8\%$$

SUGGESTED READINGS

- American Management Association, *Executive Committee Control Charts: A Description of Du Pont Chart System*, AMA Management Bulletin No. 6, New York, 1960.
- Foulke Roy A., *Practical Financial Statement Analysis*, 5th ed. New York: McGraw-Hill, 1962.
- Graham, B. and Charles McGolrick, *The Interpretation of Financial Statement*, New York: Harper & Row, 1964.
- Kennedy, Ralph D. and Stewart McMullen, *Financial Statements: Form, Analysis and Interpretation*, 4th ed. Homewood, Ill.: Richard D. Irwin, Inc., 1962.
- Myer, John N., *Financial Statement Analysis: Principles and Technique*, 3rd ed., Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1961.

CASE STUDIES

5.1. IDENTIFICATION OF INDUSTRIES

The nature of an industry has a significant influence on the patterns of the need for funds, the financing methods and the financial results of most units in that industry though there may be variations in financial practices and policies and in operating results between units in the same industry. Exhibits 1 and 2 give rupee amounts in lakhs and percentages for items appearing in the balance sheets and income statements of twelve companies in the following twelve industries :

- | | |
|---------------------------|-----------------------------|
| 1. Cement. | 7. Chemical. |
| 2. International Airline. | 8. Hydro-electricity. |
| 3. Sugar. | 9. Distributing. |
| 4. Banking. | 10. Cotton textile. |
| 5. Coffee Plantation. | 11. Financial Corporation. |
| 6. Iron and Steel. | 12. Automobile manufacture. |

By making the use of the given financial data, you are required to give the major characteristics distinguishing each industry from the others. How are these characteristics reflected in the asset and liability structures, income statements and ratios in Exhibits 1 and 2 ? Try to identify the industry to which the twelve companies in Exhibits 1 and 2 belong.

Exhibit 2

Selected Ratios

The Case of the Unidentified Industries

Selected ratios	A 31-8-62	B 31-7-62	C 31-3-62	D 30-6-62	E 31-12-61	F 31-3-62	G 31-3-62	H 30-6-62	I 31-3-62	J 31-12-61	K 31-12-61	L 30-6-62
<u>Current Assets</u>												
<u>Current Liabilities</u>	1.53	1.47	3.01	3.62	16.03	3.87	1.57	2.81	1.41	0.87	1.89	1.89
<u>Cash & Receivables</u>												
<u>Current Liabilities</u>	0.71	0.39	0.60	0.58	15.85	2.42	0.35	0.08	0.30	0.091	0.33	0.30
<u>Total Debt</u>												
<u>Total Assets</u>	0.82	0.41	0.60	0.54	0.72	0.61	0.57	0.69	0.47	0.95	0.55	0.21
<u>Sales/Service Revenue</u>												
<u>Total Assets</u>	1.35	0.69	0.82	1.34	0.05	0.52	0.57	0.92	0.23	0.04	0.75	0.47
<u>Net Profit</u>												
<u>Total Assets</u>	0.068	0.099	0.075	0.060	0.033	0.010	0.039	0.124	0.069	0.008	0.058	0.113
<u>Net Profit</u>												
<u>Total Net Worth</u>	0.373	0.167	0.188	0.130	0.119	0.026	0.089	0.398	0.130	0.163	0.129	0.164

6

Cost-Volume-Profit (Break-Even) Analysis

The cost-volume-profit (C-V-P) analysis helps in finding out the relationship of costs and revenues to output. It enables the financial manager to study the general effect of the level of output upon income and expenses and, therefore, upon profits. This analysis is usually presented on a break-even chart. It helps in understanding the behaviour of profits in relation to output. Such an understanding, among other things, is significant in planning the financial structure of a company. There are two elements to consider—the level of the break-even point and the rapidity (volatility) with which profits change in relation to output.

The C-V-P analysis is used to answer many of the questions faced by management. As profits are affected by the interplay of costs, volume and selling prices, management must have at its disposal analyses that can allow reasonably accurate presentation of the effect a change in any one of these factors would have on the profit performance. When plans are formulated for a given period, certain questions of the following type have to be answered: Should emphasis be placed on increasing sales volume? If so, to which of the many products marketed should it be applied? Would an increase in selling price, even though accompanied by a decrease in volume, result in more profitable operations? Should efforts be made to reduce costs instead of increasing volume or selling price as a step toward increased profits? If cost reduction is the answer, should pressure be exerted to reduce variable or fixed costs? Not all of these questions would be asked by management in every industrial enterprise since the elasticity of demand and the extent and nature of competition would have a varying impact in different industries. Cost-volume-profit analysis is of great assistance in obtaining answers to the above questions.

Cost-volume-profit analysis, break-even analysis and profit-graphs

are interchangeable words.¹ A profit-graph has been defined as a "diagram showing the expected relationship between the cost of revenue at various volumes." Similarly, C-V-P analysis furnishes complete picture of the profit structure which enables management to distinguish between the effect of sales volume fluctuations and the results of price or cost changes upon profits.

There is a growing complexity of costs incurred by a company in its efforts to attain sales volume that can permit a satisfactory level of profits.

An important segment of profit forecasting revolves around a determination of how costs change with output. This information can be presented in chart form after making a distinction among the classes of costs: fixed and variable.

Fixed costs. For manufacturing and selling a product or service, every business has to incur costs. Some of these are fixed which may represent financing outlays to be made regardless of sales. They may also consist of depreciation charges, property taxes and insurance which arise because of the mere existence of a plant, equipment and office space. They may be salaries of the company's principal officers. It is worth noting that these costs tend to be related to the creation of capacity rather than to the conduct of an activity within an existing productive capacity. These costs are also a function of time. They would be the same during any designated period regardless of the level of output accomplished during the period. They are prescribed by contract or are incurred in order to ensure the existence of an operating organisation. Their inflexibility is maintained within the framework of a given combination of resources. From stage to stage of a company's capacity to grow, the fixed costs rise. Thus, when they are considered over a long enough time the feature of immobility disappears. However, within each capacity stage, such costs remain fixed regardless of the changes in actual production.

Absorption or full costing system seeks to allocate the fixed (period) costs to products. It creates the problem of apportionment and allocation of such costs to various products. By their very nature, the fixed costs have little relationship to the volume of production or sale. They are allotted to products on some 'fair' or 'equitable' basis. But any such decision is bound to be subjective and reliability of allocated cost is naturally very low. Even if the basis for allocation of fixed expenses is settled, there is still a problem. The actual total cost is distorted not only by fluc-

¹ In describing profit-graphs, Robert N. Anthony states: "This device is also called a break-even chart but such a label has the unfortunate implication that the objective of the business is merely to break-even." *Management Accounting*, 3rd edition, 1954, p. 485. However, the term break-even is widely known and well accepted.

tuations in volume of production but also by variations in the amount of expenses incurred at irregular intervals. Allocation of overhead expenses is usually fraught with considerable technical and accounting difficulties and apportionment of fixed costs on an arbitrary basis is of limited value and can even be dangerous.

Variable costs. Variable costs are related to the activity itself rather than to the physical and administrative framework which makes the activity possible. These costs expand or contract as the activity rises or falls. For instance, the number of items produced in a period directly determine the amount of material used in their production. Similarly, the volume of output establishes the direct workers required and the hours they must put in as well as the amount of certain supplies and other direct factory expenses. Over the long run, all costs tend to be variable. But within a given time span, covering an established level of capacity, distinction has to be drawn between costs that are relatively free of the ups and downs of production and those that vary directly with these changes.

As fixed costs do not change with production, the amount per unit declines as output rises. On the other hand, variable costs react proportionately with production changes. The amount per unit is constant with output. The decomposition of costs into fixed and variable classes proves to be a trying task. Relationships often are not clear-cut or may be obscure by unusual circumstances. Because of the numerous technological changes in recent years, it is difficult to establish a static period when output and costs can be measured over time with a reasonable assurance of accuracy. Decisions may have to be made by executive fiat, although in most cases satisfactory results are likely to be obtained through a statistical or engineering analysis.

Mechanics of break-even chart. On a break-even chart, the volume is indicated on the x-axis as number of units produced and sold. The costs and revenue are indicated on the y-axis in terms of value (rupees). The total cost (y) at any volume (x) equals a fixed component (F) plus a variable component (v) times the number of units of volume (x), i.e., for cost $y = F + vx$.

Revenue is plotted on the assumption of a constant selling price per unit. Assuming that volume can be measured as units of product and designating the unit selling price as (p), total revenue (y) at any volume (x) equals the unit selling price (p) times the number of units of volume, i.e., for revenue $y = px$.

$$y = F + vx$$

$$y = px$$

$$px = F + vx.$$

These relationships can be illustrated by assuming the following situation :

Fixed cost	Rs 500
Variable cost	Re 1 per unit
Selling price	Rs 2 per unit
Normal volume	750 units

In this situation, total cost ($F + vx$) at normal volume would be Rs 500 (fixed cost) + Re 1 \times 750 (variable cost) = Rs 1,250.

The revenue (px) by selling 750 units at Rs 2 per unit would be Rs 1,500. Thus the profit would be Rs 1,500 - Rs 1,250 = Rs 250. At the break-even volume, cost is equal to revenue and the break-even volume is $px = F + vx$. If we use the above figures in this equation, the result would be as follows :

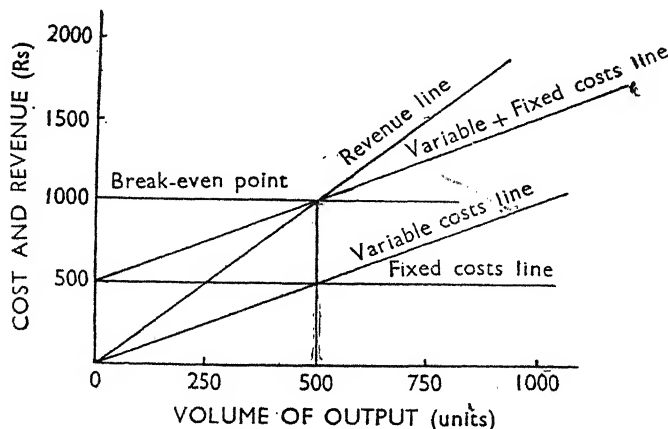
$$2x = \text{Rs } 500 + 1x$$

$$x = 500 \text{ units.}$$

We, therefore, find that the break-even volume is 500 units. These results have been shown in Figure A.

Figure A

Break-even Chart or Profitgraph



Mathematical formulae. The point of break-even can be determined mathematically with the formula given below :

$$x = \frac{F}{1 - V_f} \text{ or } \frac{F}{C/S}$$

where: x = Break-even point in rupee sales

F = Total fixed costs at the present level of sales

V_r = The ratio of variable costs (per unit) to selling price (per unit)

C/S = Percentage of contribution to sales.

$$\text{Substituting: } x = \frac{\text{Rs } 500}{.5} = \text{Rs } 1,000.$$

To get the number of units instead of the sales value at the break-even point, use the following formula:

$$x = \frac{F}{p-v}$$

where: x = The number of units at the break-even point

F = Total fixed costs at the present level of sales

p = Selling price per unit

v = Variable costs per unit.

$$\text{Substituting: } x = \frac{\text{Rs } 500}{\text{Rs } 2 - \text{Rs } 1} = \frac{\text{Rs } 500}{\text{Rs } 1} = 500 \text{ units.}$$

The calculation of break-even point thus can take two forms: (i) in terms of physical volume; and (ii) in terms of rupee value of sales. The second calculation emphasises the approach of marginal income analysis. The marginal income is the difference between the selling price per unit and variable cost per unit. If the objective is to find

out the break-even volume in units, the formula would be: $x = \frac{F}{p-v}$.

On the other hand, if the break-even point has to be determined in terms of rupee sales value, the formula is: $x = \frac{F}{1-V_r}$ or $\frac{F}{C/S}$.

Profit planning and break-even analysis. Break-even analysis is an important tool of profit planning in the hands of management. (It is usually desirable to have a low break-even point than a high one. The higher the break-even point, the less chances are of operating the business at a profit over the years. For example, in managing a hotel, a comfortable position can be had if the break-even point is at 60 per cent of capacity than if it is at 90 per cent of capacity.) (Further, if an undertaking is operated close to the break-even point, slight changes in business environments are likely to result in losses.)

There are four ways in which profit performance of a business can be improved:

(a) by increasing volume;

(b) by increasing selling price;

- (c) by decreasing variable costs; and
 (d) by decreasing fixed costs.

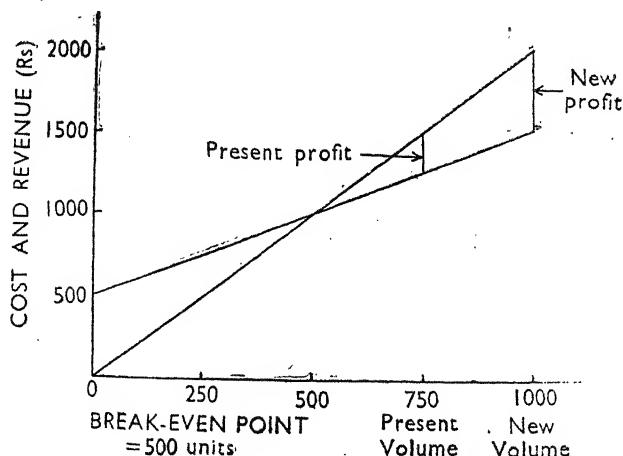
(a) *Increasing volume.* Considering our original illustration where selling price and variable costs per unit were set at Rs 2 and Re 1 respectively and fixed costs amounted to Rs 500, the company had to sell 500 units to break-even. The normal volume of production for this company had been assumed at 750 units. The amount of profit at different volumes is shown in the statement given below :

Profit at Various Volume Levels

Volume (units)	Profit (Rs.)	Percentage increase from previous level	
		Volume	Profit
500	0	..	..
600	100	20	Infinite
750	250	25	150
900	400	20	60
1,000	500	11	25

It is worth noting that a 25 per cent of sales increase (from 600 units to 750 units) would result in an increase of 150 per cent in operating profits. But the additional increase of 20 per cent, i.e., from 750 units to 900 units, would result in an increase of 60 per cent [of profits. This

Figure B
Increasing Volume



shows that as the sales move away from a break-even point, the percentage increase in profits is proportionately lower than the increase near the break-even point. Figure B shows profits at the new volume of 1,000 units.

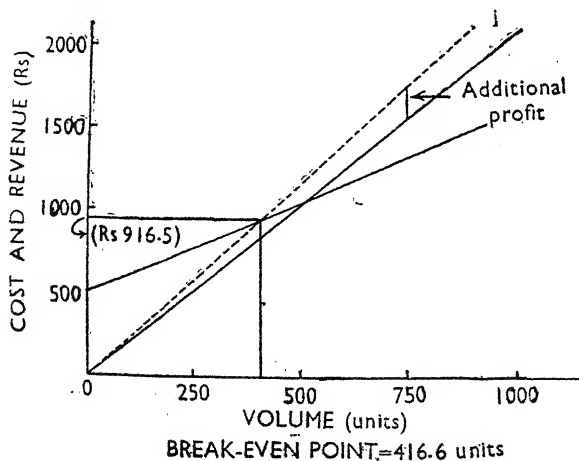
(b) *Increasing selling price.* Profit performance can be improved by increasing the selling price. An increase of 10 per cent in selling price ($\text{Rs } 2 + .20 = \text{Rs } 2.2$ per unit) would add Rs 150 to revenue and would, therefore, increase profit at current volume of 750 units from Rs 250 to Rs 400, i.e., increase of 60 per cent. With this price increase of 10 per cent the amount and percentage of profits at different volumes would be:

Profit at Various Volume Levels

Volume (units)	Profit (Rs)	Percentage increase from previous level	
		Volume	Profit
(Break-even point=416.6 units)			
500	100	..	..
600	220	20	120
750	400	25	82
900	580	20	45
1,000	700	11	21

Figure C

Increasing Selling Price



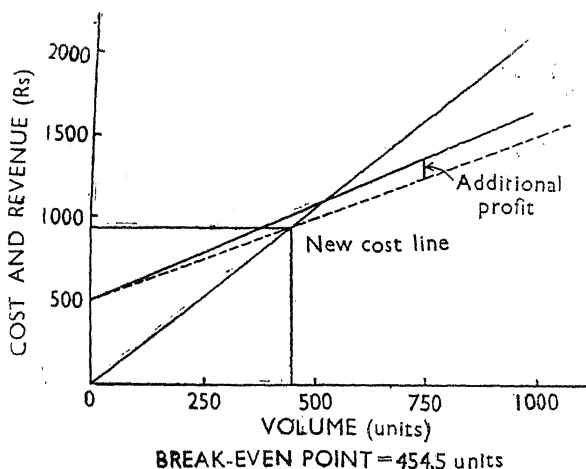
It may be noted that the break-even point with an increase in selling price at 10 per cent would be reached at 416.6 units instead of 500 units (Figure C). However, with an increase of 25 per cent in volume (from 600 units to 750 units), the percentage of profits (after an increase of 10 per cent in selling price) would go to 82 as compared to 150 in the example (a).

(c) *Decreasing variable costs.* If the company is able to reduce its variable costs by 10 per cent (Re $1 - 0.10 = 90$ paise), it would increase "contribution margin" (selling price—variable cost per unit, i.e., Rs $2 - 0.90 = \text{Rs } 1.10$) and the break-even point would decline to 454.5 units and thereby the operating leverage characteristic would also change (Figure D). A 25 per cent increase in volume from 600 units to 750 units would produce a profit increase of 103 per cent (see the following statement):

Profit at Various Volume Levels

Volume (units)	Profit (Rs)	Percentage increase from previous level	
		Volume	Profit
(Break-even point=454.5 units)			
500	50	..	..
600	160	20	220
750	325	25	103
900	490	20	51
1,000	600	11	22

Figure D. *Decreasing Variable Costs*



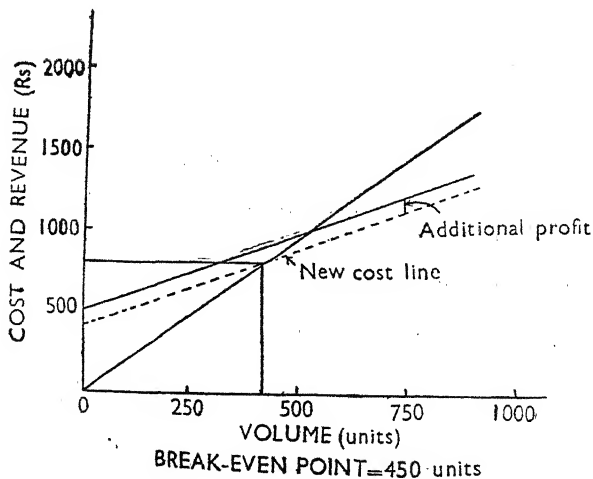
This increase deserves special notice as there is a common belief that changes in fixed costs alone can result in a favourable operating leverage. This analysis demonstrates that changes in the contribution margin due to changes either in variable costs or in selling price are very significant.

(d) *Decreasing fixed costs.* Profits can be improved by reducing fixed costs. A 10 per cent decrease in fixed costs would amount to Rs 50 and break-even point would decline from 500 units to 450 units. Figure E illustrates this effect. A 25 per cent increase in volume from 600 units to 750 units would produce a profit increase of 100 per cent and a 20 per cent increase from 750 units to 900 units would result in an increase of profit of only 50 per cent.

Profit at Various Volume Levels

Volume (units)	Profit (Rs)	Percentage increase from previous level	
		Volume	Profit
(Break-even point=450 units)			
500	50	..	..
600	150	20	200
750	300	25	100
900	450	20	50
1,000	550	11	22

Figure E. *Decreasing Fixed Costs*



Looking at some of the inter-relationships of the four possibilities to improve profit performance, we can verify that a 20 per cent increase in fixed costs would be offset by a 6.67 per cent increase in selling price, a 13.34 per cent increase in volume or a 13.34 per cent decrease in variable costs.

Margin of safety. This is the amount or ratio by which the current volume exceeds the break-even volume. Taking our example, the current volume was assumed at 750 units. The margin of safety in this illustrative situation is 250 units or 50 per cent in relation to this break-even volume of 500 units. In other words, sales volume can decrease by one-third or 33.3 per cent before a loss is incurred, other factors remaining equal.

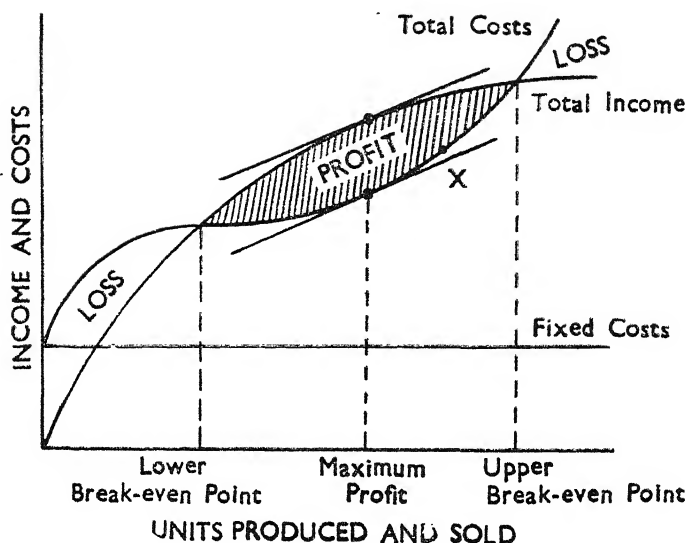
Attaining the profit objective. To ascertain the volume necessary to meet a profit objective, the desired profit figure should be added to fixed costs and divided by the marginal income ratio. For example, in our original illustration we ascertained a break-even point of 500 units or Rs 1,000 which resulted from a combination of unit sales price of Rs 2, unit variable cost of Re 1 and fixed cost of Rs 500. To establish the volume required to produce a profit of Rs 700, it is necessary to divide Rs 1,200 representing the fixed costs and profit objective ($\text{Rs } 500 + \text{Rs } 700$) by the marginal income factor of Re 1 ($\text{Rs } 2 - \text{Re } 1 = \text{Re } 1$). The result would be 1,200 units or sales of Rs 2,400.

Non-linear break-even analysis. In break-even analysis, linear (straight-line) relationships are generally assumed. Introducing non-linear relationships though complicates matters slightly, yet it is easy to extend the analysis in this manner. For example, it is reasonable to think that increased sales can be obtained only if sales prices are reduced. Further, empirical studies suggest that the average variable cost per unit falls over some range of output and then begins to rise. These assumptions are illustrated in Figure F. There we see a loss region when sales are low, then a profit region (and a maximum profit), and finally another loss region at very high output levels.

Limitations. The limitations of the break-even analysis have to be kept in mind while making use of this tool. (1) Many costs and their components do not fall into neatly compartmentalised fixed or variable cost categories as they possess the characteristics of both types.

(2) An increase in selling price often is accompanied by a decrease in volume. The above calculations assume that each of the four possibilities is independent of others which is rarely the case. The assumption of consistency in unit selling prices, technologies and the operating environ-

Figure F



Note: It can be seen that the angle of the line to the income curve declines as we move towards higher sales which means that price reductions are necessary to obtain higher unit sales volume. Unit costs decline to point X, then begin to rise. The slopes of the total-costs and total-income lines measure marginal cost (MC) and marginal revenue (MR), respectively. At the point where the slopes of the two total curves are equal, $MR = MC$, and profits are at a maximum.

ments is unreal. The changes in these factors must, therefore, be studied simultaneously rather than separately as was done above.

It was assumed that the company sold only one product. If several products with different marginal incomes were sold, the break-even chart for the whole company would show the average marginal income for all products and would be affected by changes in the mix of products. Under such circumstances break-even charts for each product or for each group of homogeneous products are more useful for analysis than is the single overall graph. In a company having multi-product plants, management may bring about a reduction of the break-even point by increasing sales of a product with a high profit margin at the expense of a less profitable item. To get around this condition, the financial manager may have to prepare and evaluate a number of profit-graphs covering integrated segments of independent activities.

The break-even analysis assumes that changes in the four factors are not accompanied by changes in amount of capital employed. If a decrease in variable costs arises because of the purchase of new machines, effect in the return of investment is not given by the profit-graph. Partly

the effect may be shown by an increase in the fixed depreciation cost but one can hardly tell from this alone what is the effect on the overall rate of return.

④ A break-even chart represents a short-run static relationship of costs to output. As it is based mainly upon historical experience, variations in costs of material and labour and introduction of new equipment or methods will change these relations. Firms that are growing rapidly find that break-even charts become obsolete very quickly. Their situation is too dynamic for a static analysis.

⑤ In many cases, it is difficult to measure output, particularly in a multi-product firm. One way of constructing a break-even chart for such a firm is to measure output in terms of per cent of capacity. Instead of showing number of units product on the x-axis of the break-even chart, per cent of capacity ranging from 0 to 100 per cent can be shown. Alternatively, machine hours or standard labour hours can be used as measures of output. The aim should be to find out a factor that serves as an equally satisfactory measure of the level of output of all products.

⑥ The relations indicated in the break-even chart do not help for all levels of operations. Costs tend to be higher than shown on the static break-even chart when the plant's operation approaches 100 per cent of its capacity. Second and third shift payments usually involve extra payments to the workers and may be more inefficient. As production moves closer and closer to capacity, it is likely that variable cost per unit would rise fairly sharply. Under such circumstances, break-even chart probably cannot be used to establish profits at such extremes.

It is assumed in the preparation of break-even charts that total costs shown are those incurred to produce the sales revenue indicated. This is often not the case. There may be research and developmental expenses which are incurred in one year but whose benefits accrue over a number of years. The difficulty of matching expenses to income increases when an attempt is made to apply break-even analysis to short periods.

The break-even chart assumes that items produced are sold at the same price regardless of output while reductions in price are expedient in order to maintain sales. These frequent changes in the selling price of the product affect the reliability of the break-even analysis.

⑦ Linear break-even analysis is especially weak in what it implies about the sale price. Therefore, in order to study profit possibilities under different prices, a whole series of charts is necessary, one chart for each price. Alternatively, non-linear break-even analysis can be used. Linear break-even analysis is useful as a first step in developing the basic data required for pricing and for financial decisions.

The cost of securing funds to expand is disregarded in the chart. Thus, beyond a certain point in short-run borrowings, the interest charges may go up sharply or funds may not even be available to the business causing a liquidity position.

USES OF BREAK-EVEN ANALYSIS

The above limitations have been elaborated not with a view to minimising the usefulness of the tool of break-even analysis. In fact, it is a very important and useful tool of financial management and control. The simplicity of these charts is one of their great values. As they are easy to understand, they constitute a helpful mechanism for showing the top management the problems inherent in cost-volume-profit relationships. They are extremely useful in planning devices. By focussing attention on marginal income, break-even studies avoid the controversial problems of locating fixed costs which do not change with volume or price variations.

In planning short-term strategies, the cost-volume-profit studies help in determining the nature and magnitude of sales efforts and establishing volume requirements. Marginal income analysis, a by-product of break-even analysis, places emphasis on cost differentials and these, rather than total cost, are influential in deciding alternative course of action.

1. Sales-mix and break-even analysis. If more than one product is involved, the problem of analysing break-even becomes complex. It becomes necessary to trace costs to specific products with a view to determining the contribution that each product makes to fixed cost recovery and profit. Without calculating the different contributions, sales promotion cannot be planned to ensure that it is directed towards most profitable products. For example, a company sells Products A and B. Fixed costs are Rs 79,200 per period and product contributions are as follows:

	Product A	Product B
Unit selling price ...	... Re 1.00	Rs 2.00
Variable costs per unit	0.40	1.60
Contribution per unit	Re 0.60	Re 0.40
Ratio and contribution margin to selling price or P/V ratio	60%	20%

If Products A and B are sold in equal proportions, the break-even point is Rs 198,000.

		P/V ratio	Mix	P/V ratio weighted by mix
Product A	..	60%	1	60%
Product B	..	20%	1	20%
				<u>80%</u>

$$\text{Weighted average} = \frac{80\%}{2} = 40\%$$

$$\text{Break-even point} = \frac{F}{P/V \text{ ratio}} = \frac{79,200}{40\%} = \text{Rs } 198,000.$$

If the mix shifts away from Product B to Product A which has the higher ratio, the P/V ratio would increase. For instance, if the Products A and B are sold in the ratio 3 : 2, the P/V ratio is 44 per cent and the break-even point is Rs 180,000.

		P/V ratio	Mix	P/V ratio weighted by mix
Product A	..	60%	3	180%
Product B	..	20%	2	40%
				<u>220%</u>

$$\text{Weighted average} = \frac{220\%}{5} = 44\%$$

$$\text{Break-even point} = \frac{79,200}{44\%} = \text{Rs } 180,000.$$

If the mix shifts away from Product A to Product B which has the lower P/V ratio and the products are sold in the ratio 2 : 3, the break-even point goes up to Rs 220,000.

		P/V ratio	Mix	P/V ratio weighted by mix
Product A	..	60%	2	120%
Product B	..	20%	3	60%
				<u>180%</u>

$$\text{Weighted average} = \frac{180\%}{5} = 36\%$$

$$\text{Break-even point} = \frac{79,200}{36\%} = \text{Rs } 220,000.$$

It may be clear that Product A deserves the sales emphasis. But will it receive that emphasis? It will, if the relative contributions of the two products are analysed. On the other hand, if salesmen are evaluated, as

Comparison of Salesmen—Performance and Commission

	Salesman No. 1			Salesman No. 2		
	Product A	Product B	Total	Product A	Product B	Total
Sales :						
Units	.. 1,000	2,000	3,000	2,000	1,000	3,000
Rupees	.. 1,000	4,000	5,000	2,000	2,000	4,000
Contribution to Profit	.. 600	800	1,400	1,200	400	1,600
Commission 5% rupee value of sales	.. 50	200	250	100	100	200

they often are, according to their rupee volume of sales or, worse yet, if their compensation is a percentage of sales. In either of these instances, salesmen will concentrate on Product B which has a selling price twice that of Product A. How a lack of knowledge could cause the company to work against itself can be observed in the comparison of the performance of two salesmen for the given period.

It may be noted that salesman No. 2, whose sales contributed Rs 1,600 to profits, was paid Rs 50 less than salesman No. 1, whose contribution was Rs 200 lower.

2. Make or buy decision. The C-V-P analysis assists in making a choice between two courses of action: to make *versus* to buy. If the variable cost is less than the price that has to be paid to an outside supplier, it may be better to manufacture than to buy.

Illustration: Suppose the price of a component is Rs 10 while its total cost of manufacture inside the firm is Rs 12, consisting of Rs 8 as variable cost and Rs 4 as fixed cost. It may be economical to manufacture the component internally because the management has to incur only an out-of-pocket cost of Rs 8. The fixed costs like supervisory salaries, depreciation, interest, etc., are associated with facilities of production irrespective of the fact whether they are used partially or fully. By taking the decision to make the component, the management will be in a position to make fuller utilisation of the existing facilities.

3. Production planning and C-V-P analysis. *Problem:* Management has to decide the quantities of Sorts A and B for production in a

week in order to maximise profits. The machine hours to produce 100 metres of Sorts A and B are given in Exhibit 1 which also shows total machine hours available for a week.

Exhibit 1

Machine	Hours* required to produce 100 metres		Total machine hours available
	Sort A	Sort B	
Cards ..	1.8	2.5	1,150 card hours
Roving ..	36	40	35,000 spindle hours
Spinning ..	720	800	384,000 spindle hours
Looms ..	20	25	9,600 loom hours

*Hours of work in one shift amount to 8.

The maximum sale of Sorts A and B for one week was expected as follows :

Sorts	Maximum sales for one week
A	30,000 metres
B	40,000 metres

The accounting data worked out for cost and profit per metre are given in Exhibit 2.

Exhibit 2

Cost and Profit per Metre

Particulars	Per metre	
	Sort A	Sort B
1. Direct or Variable Cost	1.00	1.50
2. Fixed Cost (20% of 1)*	0.20	0.30
3. Total Cost	1.20	1.80
4. Selling Price	1.30	1.90
5. Net profit (4—3)	0.10	0.10
6. Contribution (4—1)	0.30	0.40

*Total fixed expenses for one week were estimated at Rs 10,700. The traditional method of allocation of fixed expenses in this unit was to express the fixed expenses as a percentage of variable cost for each Sort costing. This percentage had been found nearly 20% from past experience.

The usual procedure followed in a textile mill is to manufacture the Sorts that give maximum net profits per loom-shift. It takes 20 hours to produce 100 metres of Sort A, *i.e.*, 5 metres per loom-hour or 40 metres per loom-shift ($\frac{100}{20} \times 8 = 40$). For Sort B, production per loom-shift will come to 32 metres ($\frac{100}{25} \times 8 = 32$ metres). Net profit, according to traditional approach, was 10 paise per metre for both the Sorts. Thus profit per loom-shift for Sort A will be Rs 4 as against Rs 3·20 for Sort B.

Since Sort A gives more profit per loom-shift, the management will like to produce it. But Sort A cannot be sold more than 30,000 metres which will take 6000 ($\frac{30,000 \times 20}{100}$) loom-hours. The total available loom hours are 9,600. Management may allocate 6,000 loom-hours for Sort A and the rest 3,600 for Sort B resulting in its production of 14,400 ($3,600 \times \frac{100}{25}$) metres. Further, this plan of production—30,000 metres of Sort A and 14,400 metres of Sort B—may also not face any bottleneck as other departments have enough capacity to put it into operation.

The total profits of this production plan work out as follows :

Sort	Production	Profit per metre	Total profit
A	30,000 metres	0·10 paise ...	Rs 3,000
B	14,400 metres	0·10 paise ...	Rs 1,440
Total			<u>Rs 4,440</u>

Can this amount of Rs 4,440 be considered as the maximum profit possible from the production plan ?

By using the above plan, the total amount of fixed expenses recovered by the unit comes to Rs 10,320, shown in the following statement, as against the amount of Rs 10,700 estimated for fixed expenses in a week.

Sort	Production	Recovery of fixed expenses per metre	Total recovery of fixed expenses
A	30,000 metres	... 0·20 paise ...	Rs 6,000
B	14,400 metres	... 0·30 paise ...	Rs 4,320
			<u>Rs 10,320</u>

What will happen to the balance of Rs 380 (Rs 10,700—10,320) of unrecovered fixed expenses ? Perhaps actual profit of Rs 4,440 will be reduced by this amount to Rs 4,060.

Solution II (based on cost-volume-profit analysis). The contribution (selling price—variable cost) of Sorts A and B (Exhibit 2) amounts to 30 paise and 40 paise per metre respectively and the production of Sorts A and B per loom-shift figures at 40 metres and 32 metres respectively. Therefore, the total contribution of Sort A per loom-shift will be Rs 12 ($40 \times 30 = 12$) as against Rs 12.80 ($32 \times 40 = 12.80$) per Sort B. As the contribution of Sort B is higher than that of Sort A, its maximum production (provided it is allowed by different machine-hours) will be taken up. The production of 40,000 metres of Sort B will involve 10,000 loom hours ($\frac{40,000 \times 25}{100}$). As only 9,600 loom-hours are available, the maximum production of Sort B will figure at 38,400 metres ($\frac{9,600 \times 100}{25}$) and production of Sort A will be dropped. Verification of production reveals that there are no bottlenecks in other departments. This plan will enable the unit to have the following contribution :

Sort	Contribution per metre	Production	Total Contribution
A	0.30 paise	0	0
B	0.40 paise	38,400	15,360
Total contribution to Fixed Expenses and Profit =			Rs 15,360

$$\begin{aligned}\text{Profit} &= \text{Total Contribution} - \text{Fixed Expenses} \\ &= \text{Rs } 15,360 - 10,700 = \text{Rs } 4,660.\end{aligned}$$

It may thus be seen that C-V-P analysis helps in planning the production of items giving maximum contribution towards profit and fixed costs.

4. Break-even analysis and cost control. As a control device, cost-volume-profit analysis can be used to detect insidious upward creep of costs that might otherwise go unnoticed. In the minds of most managements there is honest feeling that when selling prices soften and volume drops, their fire-alarm system will ring and everyone will proceed to put the fire out by reducing costs. Experience, however, shows that such is generally not the case. When revenue is easy to come by, cost supervision begins to weaken and break-even points start to move up. Fire-alarm systems are late in flashing the warning and firemen are slow to respond. This slow increase in costs "creeping accretion" has been termed as a disease whose germs lie dormant waiting for a favourable environment in which they develop. Creeping accretion cannot be eradicated once for all. It can only be held in check by rigid cost controls to be applied in good times as well as bad. The symptoms of this disease are not readily apparent. But cost-

volume-profit analysis provides a valuable detection device. It reveals whether actual performances are as profitable as they should have been.

5. Break-even analysis and financial structure. Break-even analysis, as already noted, provides an understanding of the behaviour of profits in relation to output. This understanding is significant in planning the financial structure of a company. Generally it is more desirable to have a low break-even point than a high one. The higher the break-even point, the lesser the chance of operating at a profit over the years. If a company is operating close to the break-even point, slight changes in economic environments may readily result in losses. Under such conditions it would be unwise for the company to borrow money, for fear that it would not be able to repay its debts or meet the required interest payments.

Companies whose sales fluctuate widely or wildly are more concerned with the break-even point than companies with relatively stable sales. A break-even point at 30,000 units is not painful if the sales in a company vary from 35,000 to 40,000 units. But if sales fluctuate from 25,000 to 50,000 units, situation for the company concerned deteriorates. Average profits over a period of years may be the same for two companies but the first company may safely borrow money, whereas the second company should avoid debt because of its wide fluctuations in earnings.

Here it is necessary to appreciate the relationship between *financial leverage* and *operational leverage*. Financial leverage indicates a situation where a company uses funds on which it has to pay a fixed return. Similarly, the use of assets for which a company pays a fixed cost is called operational leverage. Just as the fulcrum that provides financial leverage is the fixed payment for the use of funds, so the fulcrum that provides operational leverage is the fixed charge paid for the use of assets. The

	Output of 40,000 units	Output of 44,000 units
	Rs	Rs
Revenues (selling price one unit at Re 1)	40,000	44,000
Variable Costs (one unit at 50 paise) ..	20,000	22,000
Fixed Cost ..	15,000	15,000
	35,000	37,000
Net operating income	5,000	7,000
Increase in net operating income =		40 %
Increase in units produced =		10 %

higher the turnover of operating assets, the greater the revenue in relation to the fixed charge for these assets.

The degree of operational leverage at a point is the ratio of the percentage increase in operating income to the percentage increase in output. It can be illustrated as above.

It may be noted that an output of 40,000 units produces a net operating income of Rs 5,000, while an output of 44,000 units (10 per cent higher) produces a net operating income of Rs 7,000 (40 per cent higher).

At the point of 40,000 units, a 40 per cent increase in net operating income has resulted from a 10 per cent rise in output. In other words, the rate of increase in net operating income is four times the rate of increase in output. The degree of operational leverage at a given point is the ratio of net operating income before fixed charges to net operating income after fixed charges.

Degree of operational leverage at 40,000 units

$$= \frac{40,000(1.00 - .50)}{40,000(1.00 - .50) - 15,000} = 4.00.$$

A change that increases the spread between the selling and variable cost per unit ($p-v$) will lower the degree of operational leverage at any point above the break-even point. This result would follow an increase to the selling price per unit or a decrease in the variable costs per unit. Alternatively, a narrowing of the spread between selling price and variable costs per unit above the break-even point raises the degree of operational leverage. Similarly, a company operating above the break-even point also finds that the degree of operational leverage increases with an increase in fixed charges and decreases with a reduction in fixed charges. This is due to the fact that the fixed charges provide the fulcrum for the operational leverage.

A company operating near the break-even point with a high degree of operational leverage finds that it is in and out of the danger year after year. It is unwise to employ financial leverage for such a company with highly fluctuating operating earnings. *The use of financial leverage on top of a high degree of operational leverage would increase the fluctuations in earnings available for the owners to wild extremes.* Moreover, such a company would be taking an undue risk of not being able to meet the fixed obligations on its borrowed funds.

6. Using C.V.P. analysis to test the forecast. A knowledge of the profit structure of a firm, together with the related analysis, can identify areas of cost increases and permit an evaluation of the forecast. Typically, a projection is compared with some past year, usually the

immediately preceding year, to determine whether or not it appears satisfactory. Such a comparison has a limited value. As most of the time the sales level and product-mix in the forecast year will not be identical with that of the past year, it may be difficult to measure more precisely the propriety of the cost and expenses in relation to sales volume. Hence there is a need of a tool which permits a more effective evaluation of the cost and profit structure in relation to sales.

Once management has agreed upon a reasonable sales objective, a target for the year under forecast, then it is practical to measure the proposed forecast against the break-even structure, i.e., to apply the break-even economic structure of the company to the projected sales volume. It means that management should decide upon reasonable cost-volume-profit relationships to be used as standard for measuring the forecast.

For illustrative purposes, we will consider the Hypothetical Company with a profit structure shown in Exhibit 3. It may be noted that not only fixed and variable costs have been segregated but also the variable costs

Exhibit 3
The Hypothetical Company
Standard Profit Structure

	Fixed Costs	Variable Costs		Total
		Amount	% Net Sales	
	Rs	Rs		Rs
Net Sales				10,00,000
Costs and Expenses :				
Direct Material		4,00,000	40.00 %	
Manufacturing	50,000	1,00,000	10.00 %	
Selling	40,000	50,000	5.00 %	
Research & Development	10,000	50,000	5.00 %	
General & Administrative	15,000	50,000	5.00 %	
	<u>1,15,000</u>	<u>6,50,000</u>	<u>65.00 %</u>	<u>7,65,000</u>
Operating Profit (Earnings Before Interest and Tax)				Rs 2,35,000

for each major function or cost segment have been translated into their applicable percentages of net sales rupees. This information can now be applied in an evaluation of the reasonableness of the forecast. The results of an application of the break-even factors, as shown in Exhibit 4, to a

projected sales volume (assumed at Rs. 12,00,000) and the comparison of results with the aggregate costs and expenses as set forth in an illustrative forecast, are shown in Exhibit 4. Percentage relationships have been developed to detect out-of-line conditions.

Exhibit 4

The Hypothetical Company

Break-even Analysis of Forecast 1971

	Application of Standard Profit Structure Rs	Forecast Rs	Forecast Over (Under) Standard	
			Rs	%
Net Sales	12,00,000	12,00,000		
Cost of Sales				
Direct Material	4,80,000	5,00,000	20,000	4.17%
Manufacturing Expenses	1,70,000	2,00,000	30,000	17.65%
	6,50,000	7,00,000	50,000	7.69%
Gross Margin	5,50,000	5,00,000	(50,000)	(9.09)
Operating Expenses				
Selling	1,00,000	1,05,000	5,000	5.00
Research & Development	70,000	60,000	(10,000)	(14.28)
General & Administrative	75,000	60,000	(15,000)	(20.00)
Total	2,45,000	2,25,000	(20,000)	(8.16)
Operating Profit	3,05,000	2,75,000	(30,000)	(8.84)
Sales for Break-even Point	3,28,571	3,53,846	25,275	7.7%
Contribution to Sales Ratio	.35	.325		

It may be observed from Exhibit 4 that the greatest increase is in manufacturing expenses. This 17.65 per cent or Rs. 30,000 increase must be analysed to determine whether the cost increase results from changes in product-mix or from cost increases in any given product line. This increase must be analysed in more depth and a decision made as to an acceptable plan. Departmental budgets should be reviewed to determine the areas of increase and causes should be determined for deciding the corrective action. If, for example, the increase is in maintenance expense, is

it sound to defer projects? What is the best approach in the long-term interests of the business? Similar analysis should be made of the other expense areas.

If expenses are under the standard (as in the case of research & development and general & administrative expenses), the management should ascertain that these cuts are in the long-term interests of the business.

It may be noted that break-even point has risen by 7.7 per cent because of reduction of contribution to sales ratio from .35 to .325.

This analysis helps in providing information about the nature and extent of deviation of forecast from the standard profit structure with a view to deciding the corrective action. If management thinks that the standard profit structure must be maintained, every element should be analysed and explored so that the final business plan for the coming year retains the characteristics of this structure. Once the most satisfactory cost-volume-profit relationship is determined, including the proper product-market mix, then the possibility of securing additional sales volume to offset cost increases has to be considered.

The break-even analysis can be used to assist in answering many managerial questions. Because of considerations relating to the market or to expansion, management often desires information concerning the results of a contemplated action, such as what the operating profit would be at a particular level of sales volume, or what the effect on operating profit would be if a certain percentage increase in sales volume were realised, etc. The contribution to sales ratio (marginal income ratio) and the related segregation of fixed cost simplify the solution to such problems.

7. Operating profit at any given sales volume. Using the Hypothetical Company's profit structure, what would be the operating profit at a level of annual sales of Rs 15 lakhs? The operating profit will be the contribution (amount of sales income *less* all variable costs) *less* the fixed cost.

Contribution	Rs 15,00,000 × .35
	= Rs 5,25,000
Less fixed cost	Rs 1,15,000
Present operating profit	Rs <u>4,10,000</u>

8. Effect on operating profit of a given percentage increase in sales volume. In stating the sales objective each year, management usually likes to note the profit results at any level of sales expressed as

amount or percentage of increase. The answer may be determined by making the following calculations. If the present sales volume is Rs 15,00,000, with a profit-volume ratio of .35, the computation of a 10% increase in sales is as follows :

$$\text{Sales increase} = \text{Rs } 15,00,000 \times 10\% = \text{Rs } 1,50,000.$$

Applying contribution to sales ratio of Rs 1,50,000 \times .35, there would be an increase in the operating profit of Rs 52,500. In such circumstances, with no change in fixed expense, the operating profit is simply the sales increase multiplied by the contribution to sales ratio.

9. Sales volume required to produce a certain amount of operating profit. In planning, management often decides that for financial or other considerations, a given profit must be attained. The question then will naturally arise as to the sales volume necessary to produce it. In a calculation of this type, the desired operating profit becomes in effect the equivalent of fixed cost. If the desired operating profit of the Hypothetical Company is Rs 3,05,000, then sales volume will be as follows :

$$\begin{aligned} \text{Required Sales Volume} &= \frac{\text{Fixed cost} + \text{Desired operating profit}}{\text{Contribution to sales ratio}} \\ &= \frac{\text{Rs } 1,15,600 + \text{Rs } 3,05,000}{.35} \\ &= \text{Rs } 12,00,000. \end{aligned}$$

10. Additional sales volume required to offset a reduction in selling price. If management wants to study the effect of a reduction in selling price with a view to offsetting it by an increase in the volume of sales, the following calculation becomes relevant.

For example, the Company contemplates a reduction of 10% in prices when it has a sales volume of Rs 10 lakhs with fixed expenses of Rs 1.15 lakhs and a contribution to sales ratio of .35, the new sales volume required to maintain the present operating profit can be found out. The first step is to calculate the present operating income as follows :

Contribution	Rs 10,00,000 \times .35
	= Rs 3,50,000
Less fixed cost	Rs 1,15,000
Present operating profit	<u>Rs 2,35,000</u>

Next, we must adjust the changed contribution to sales ratio.

$$\begin{aligned}
 \text{Sales volume to offset} &= \frac{\text{Desired profit} + \text{Fixed cost}}{1 - \left(\frac{1 - \text{Present variable cost to sales ratio}}{1 - \text{Proposed percentage reduction in selling price}} \right)} \\
 \text{reduced selling price} &= \frac{\text{Rs } 2,20,000 + \text{Rs } 1,15,000}{1 - \left(\frac{0.65}{1 - 0.10} \right)} \\
 &= \text{Rs } 12,05,000.
 \end{aligned}$$

The required sales volume of Rs 12,05,000 represents an increase of 20.5% over the present level. The ability to secure such an increase should be explored in terms of both sales potential and plant capacity.

11. Effect of changes in fixed cost and variable cost ratios.

As the objective of management is to have a maximum return on investment capital, consistent with social objectives, it has to make a continuous search for reduced costs. If management feels that the normal or standard profit structure may be improved by reducing the direct material cost by 10% through certain substitutions and that fixed cost may be lowered from Rs 1,15,000 to Rs 1,00,000, it has to ask the question: "What would be the probable operating profit at an annual sales level of Rs 12,00,000?" The answer can be attempted as given below:

$$\begin{aligned}
 \text{New Variable Cost Ratio} &= (\text{Present variable cost of material percentage to sales} - 10\%) + \text{other variable cost} \\
 &= (40 - 10\%) + 25 \\
 &= 61.
 \end{aligned}$$

Therefore,

$$\begin{aligned}
 \text{the new contribution to sales ratio} &= 1 - \text{Variable Cost Ratio} \\
 &= 1 - 61 \\
 &= 39.
 \end{aligned}$$

Now, operating results may be determined as follows:

$$\begin{aligned}
 \text{Contribution} &= \text{Sales Volume} \times \text{Contribution to Sales Ratio} \\
 &= \text{Rs } 12,00,000 \times 39 \\
 &= \text{Rs } 4,68,000.
 \end{aligned}$$

Contribution of Rs 4,68,000 less the revised fixed cost of Rs 1,00,000 will produce an operating income of Rs 3,68,000.

These calculations can be tabulated for having a meaningful comparison :

	Present		Revised Level	
	Amount (Rs)	Percentage to Net Sales	Amount (Rs)	Percentage to Net Sales
Net sales	10,00,000	100%	12,00,000	100%
Variable Cost	6,50,000	65	7,32,000	61
Contribution	3,50,000	35	4,68,000	39
Fixed Cost	1,15,000	11.5	1,00,000	8.33
Operating Income (profit)	2,35,000	23.5%	3,68,000	30.67%

12. Deciding plant expansion. Management finds break-even analysis useful in making a critical review of the proposal of plant expansion. It has to get answer to the following queries: (a) new break-even point; (b) sales volume required to earn the present level of profits; (c) sales volume necessary to earn the desired profit on the proposed facility; and (d) maximum profit potential.

Illustration. In our example of the Hypothetical Company, the sales forecast is at the level of Rs 12,00,000. Management may be of the opinion that the full plant capacity of Rs 15,00,000 will be required within the next two years. Thus, maximum annual earnings of the Company, with present facilities and the profit structure, will be as follows :

	Rs
Net Sales	15,00,000
Costs and Expenses	
Variable (65% of net sales)	9,75,000
Fixed	1,15,000
	10,90,000
Operating Profit	4,10,000
Tax (50% assumed)	2,05,000
Net Profit	2,05,000

The data relevant to plant expansion are :

Annual fixed expenses of new plant	25,000
Desired annual income on new investment (20% of Rs 2,25,000—assumed)	45,000
Maximum sales volume of new plant	2,50,000

On the basis of this information, relevant calculations for new plant can be made.

(a) New break-even point

$$\begin{aligned}
 &= \frac{\text{Present Fixed Costs} + \text{Additional fixed costs}}{\text{Contribution to Sales Ratio}} \\
 &= \frac{\text{Rs } 1,15,000 + \text{Rs } 25,000}{.35} \\
 &= \text{Rs } 4,00,000 \text{ Sales volume.}
 \end{aligned}$$

(b) Sales volume required to earn the present level of profits

$$\begin{aligned}
 &= \frac{\text{Present fixed costs} + \text{Additional fixed costs} + \text{Present operating profit}}{\text{Contribution to sales ratio}} \\
 &= \frac{\text{Rs } 1,15,000 + \text{Rs } 25,000 + \text{Rs } 3,05,000}{.35} \\
 &= \text{Rs } 12,70,000.
 \end{aligned}$$

(c) Sales volume required to earn the given return on proposed investment

$$\begin{aligned}
 &= \frac{\text{Present fixed costs} + \text{Additional fixed costs} + \text{Present return on investment} + \text{Desired return on new investment}}{\text{Contribution to sales ratio}} \\
 &= \frac{1,15,000 + 25,000 + 3,05,000 + 45,000}{.35} \\
 &= \text{Rs } 14,00,000 \text{ Sales volume.}
 \end{aligned}$$

(d) Maximum profit potential after plant expansion

Net sales (capacity)	Rs 17,50,000
(15,00,000 + 2,50,000)	
Costs and expenses	
Variable (65% of net sales)	Rs 11,37,500
Fixed (1,15,000 + 25,000)	1,40,000
	<hr/>
	12,77,500
Operating profit	<hr/>
	4,72,500
Taxes (50% assumed)	2,36,250
	<hr/>
Net profit (potential)	Rs 2,36,250

These calculations may be summarised for having meaningful input for managerial decision-making.

	Present facilities Rs	Prospective facilities Rs	Increase Rs
Annual break-even sales volume	3,28,571	4,00,000	71,429
Annual sales volume to earn present operating profit	12,00,000	12,70,000	70,000
Annual sales volume to earn desired return on new facility	12,00,000	14,00,000	2,00,000
Maximum sales volume	15,00,000	17,50,000	2,50,000
Maximum profit potential	2,05,000	2,36,250	31,250

Management should consider carefully its ability to secure and maintain, at the assumed prices, an additional sales volume of Rs. 2,00,000 necessary to earn the desired return on new facility as against the new maximum sales volume capacity of Rs. 2,50,000.

13. Cash break-even analysis. As some of the firm's fixed costs are non-cash outlays, the cash break-even chart for the firm can be constructed. It is useful because it provides a picture of the flow of funds from operations. If cash outlays are small, even during periods of losses, a firm might still be operating above the cash break-even point. Thus, the risks of insolvency, in the sense of inability to meet cash obligations, would be small. But cash break-even analysis does not fully represent cash flows—for this a cash budget is required.

Break even analysis under conditions of uncertainty

Break-even presentations can be supplemented by profitability analysis. But the extent to which this dimension can be added depends upon the nature of data and reliability of expectations regarding future outcomes. When some reasonable basis for subjective extrapolation is available, this form of analysis provides the financial management with information helpful in its decision-making activities. For instance, assume that for two products under consideration the selling price per unit, the variable cost per unit and the total cost are known with some certainty. Based on this information, it is calculated that the break-even level is the same for both the products. The one with the higher expected sales volume, then, would be preferable. If, however, the expected level of sales was the same, further analysis would be necessary to determine the probability that different volumes of sales would be achieved.¹

¹ For a more detailed discussion, see Robert K. Jeadicke and Alexander A. Robichek, "Cost-Volume-Profit Analysis under Conditions of Uncertainty", *The Accounting Review*, October, 1964.

Caution for use of C-V-P analysis

During the early stages of business recession when sales lag behind production, the contribution to overheads and profit is low. This may unduly impress the management as to the severity of the recession and cause it to take actions that may mean missing profit opportunities in the near future or may depress the market even further. Moreover, in capital intensive industries with increased automation the fixed costs will increase. Such a shift in the cost characteristics of a firm requires appropriate change in planning. In such a situation attention should be given more to the control of fixed (managed) costs than to variable (direct) costs.

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7

Analysis of Operating and Financial Leverages

Leverage may be defined as “meeting a fixed cost or paying a fixed return for employing resources or funds.” The fixed cost or return is treated as the fulcrum of a leverage. Leverage calculations relate changes in sales to changes in one of the various levels of income (operating profit and profit before tax).

Operating leverage. (Operating leverage results when fluctuations in sales revenue produce a wide fluctuation in operating profit) Operating leverage occurs where a firm has fixed cost that must be met regardless of volume or value of sales. With fixed cost, the percentage change in operating profit accompanying a change in sales is greater than the percentage change in sales. This occurrence is known as operating leverage. The degree of operating leverage depends upon the amount of fixed elements in the cost structure. Operating leverage in a firm is a function of three factors—the rupee amount of fixed cost, the variable contribution margin, and the volume of sales. There are two approaches for calculating operating leverage. In the first approach operating leverage can be measured as :

$$L = \frac{N(P-V)}{N(P-V)-F}$$

where, N is the number of units sold; P is selling price per unit;
V is the variable cost per unit; F is the fixed cost; and
L is the operating leverage.

By the second approach operating leverage can be determined by means of break-even or cost-volume-profit analysis. The break-even

analysis shows the degree of a firm's operating leverage which at any level of sales is :

$$\frac{\text{Contribution}}{\text{Operating Profit}}$$

where, Contribution = Sales — Variable Cost

and Operating Profit = Contribution — Fixed Cost.

The break-even point for a particular value of sales, as discussed in the earlier Chapter, can be determined for different amounts of fixed cost by dividing the respective fixed cost by the percentage relationship of contribution to sales, or $\frac{F}{C/S}$ (F = Fixed cost; C/S = Percentage of contribution to sales).

Both these approaches are effectively one and the same. In the former approach $N \times P$ will give total sales and $N \times V$ will give total variable cost, i.e., the numerator will be (Sales — Variable Cost), i.e., contribution. Similarly, the denominator will give (Contribution — Fixed Cost), i.e., operating profit.

These concepts would be clear from the following illustration of the Hypothetical Company having :

Installed capacity	... 600 units
Capacity in operation	... 400 units
Selling price per unit	... Rs 10
Sales	... Rs $400 \times 10 = 4000$ (S)
Variable cost per unit	... Rs 6
Variable cost	... Rs $400 \times 6 = 2400$ (V)
Contribution (S—V)	... Rs $4000 - 2400 = 1600$
Percentage of contribution to sales (C/S)	... $1600/4000 = 40$
Fixed Cost: Situation A	... Rs 400
Situation B	... Rs 1000
Situation C	... Rs 1200

With this given data, we can calculate operating leverage as follows :

Exhibit 1

	Situation A	Situation B	Situation C
	Rs	Rs	Rs
1. Sales	4,000	4,000	4,000
2. Variable cost	2,400	2,400	2,400
3. Contribution	1,600	1,600	1,600
4. Fixed cost	400	1,000	1,200
5. Operating profit	1,200	600	400
6. Operating leverage $\left(\frac{C}{OP}\right)$	$\frac{1600}{1200}$ $=1.33x$	$\frac{1600}{600}$ $=2.66x$	$\frac{1600}{400}$ $=4x$
7. Break-even point $\left(\frac{F}{C/S} \text{ or } \frac{F}{.40}\right)$	1000	2500	3000
8. Margin of safety ratio (OP/G)	$\frac{1200}{1600}$ $=75\%$	$\frac{600}{1600}$ $=37.5\%$	$\frac{400}{1600}$ $=25\%$
9. Percentage of sales for break-even point (7 in relation to 1)	25%	62.5%	75%

A 10 per cent increase in the volume of sales would be accompanied by an increase of 13.3 per cent in the operating profit in Situation A, 26.6 per cent in Situation B, and 40 per cent in Situation C. It is interesting to note that Situation C is of a high operating leverage since a change of 10 per cent sales will result in a change of four times of 10 per cent in operating profit, i.e., 40 per cent. Such a situation poses a problem of high risk because with a slight decrease in sales the profits would decrease by more than a proportionate amount.

Operating leverage is a reciprocal of margin of safety ratio (operating profit/contribution). The margin of safety ratio in Situation A is 75 per cent, i.e., 1200/1600 (row 8 in Exhibit 1). Under this situation the Hypothetical Company can afford to lose its sales upto this percentage before it reaches the break-even point. On the other hand, margin of

safety ratio in Situation C is only 25 per cent which means the Company has not got enough shock-absorbing capacity. The padding is very thin and with reduction in sales of more than 25 per cent it will be in the red. High operating leverage, in other words, involves a very risky situation because the margin of safety is very low. A low operating leverage, on the contrary, gives enough cushion to the management by providing a high margin of safety against the fluctuation in sales. Break-even point in a situation of high margin of safety is reached automatically at a low operational level (row 9 in Exhibit 1). For instance, break-even point in Situation A was reached at 25 per cent of sales as against 75 per cent of sales in Situation C.

Financial leverage. Financial leverage indicates the effect on earnings created by the use of fixed charge securities in the capitalisation plan. It results from the use of funds with the fixed rate of return, i.e., degree of financial leverage at any level of operating profit is:

$$\frac{\text{Operating Profit (OP or EBIT)}}{\text{EBIT} - \text{Interest (PBT)}}$$

(EBIT=Earnings before interest and tax)

(PBT=Profits before tax).

From our example, we can calculate the financial leverage for the Hypothetical Company at the operating profit of Rs 400 (Situation C) after assuming an amount of Rs 4000 as its capital employed. Suppose

Exhibit 2

	Financial Plan X (1 : 1)	Financial Plan Y (1 : 3)	Financial Plan Z (3 : 1)
	Rs	Rs	Rs
Equity	2,000	1,000	3,000
Debt	2,000	3,000	1,000
Operating profit (Situation C)	400	400	400
Interest (10% on debt)	200	300	100
Profit before tax	200	100	300
Financial leverage $\left(\frac{\text{OP}}{\text{PBT}}\right)$	$\frac{400}{200}$	$\frac{400}{100}$	$\frac{400}{300}$
	=2x	=4x	=1.33x

Note. The cost of debt has been assumed at 10 per cent before tax.

the Company has to make a choice out of the above three financial plans of equity-debt mix (X, Y and Z) to provide for Rs 4000 (Exhibit 2).

A 100 per cent increase in operating profit would give rise to 200 per cent increase in profit before tax in X Plan, 400 per cent increase in Y Plan and 133 per cent increase in Z Plan. The greater the amount the interest costs are covered, the lower is the degree of financial leverage. This approach can be applied to a financial plan having preference shares by deducting the specified dividends on preference shares (after grossing them up for tax rate) from the earnings before interest and tax.]

Financial leverage involves the use of funds at a fixed cost in the hope of increasing return to equity shareholders. The favourability of financial leverage or 'trading on equity', as it is called, is judged in terms of the effect upon earnings per share to equity shareholders. Whether the leverage is favourable, in the sense of increasing earnings per share, will depend upon the profitability of investment opportunities for which funds are used. If the rate of return on the investment of these funds exceeds their explicit cost, leverage is said to be favourable in a narrow and restricted sense because it does not take into account any implicit cost inherent in the use of debt financing.

Combined effect of operating and financial leverage. The combined effect of operating and financial leverage measures their interaction on a firm. The degree of combined effect of these two leverages can be calculated by multiplying operating and financial leverages : $\frac{C}{OP} \times \frac{OP}{PBT} = \frac{C}{PBT}$.

From our example, we can determine combined effect for the Hypothetical Company at an operating profit of Rs 400 (Situation C) with Financial Plan Y (where debt amounted to Rs 3000 as against equity of Rs 1000) :

$$1600/400 \times 400/100 = 16 \text{ times.}$$

It may be noted that an increase/decrease of 10% in revenue will result in increase/decrease of profits before tax by 160 per cent. This can be verified from Exhibit 3.

A firm with a high operating leverage (Situation C) should not have a high financial leverage (Financial Plan Y). In fact, it should have a low financial leverage (Financial Plan Z). On the other hand, a firm which is having a low operating leverage (Situation A) can fruitfully have a financial leverage (Financial Plan Y) provided it has got enough profitable opportunities for the employment of borrowed funds.

Exhibit 3

		I (10% increase in sales)	II (10% decrease in sales)
	Rs	Rs	Rs
Sales	4000	4400	3600
Variable cost (60% of sales)	2400	2640	2160
Contribution	1600	1760	1440
Fixed cost	1200	1200	1200
Operating profit	400	560	240
Interest	300	300	300
Profit/loss before tax	100	260 (+160%)	-60 (-160%)

The various combinations of operating leverage and financial leverage for the Hypothetical Company are given in Exhibit 4.

Exhibit 4

	Situation A	Situation B	Situation C
Operating leverage	1.33 times	2.66 times	4 times
Financial leverage			
Financial Plan X	1.20 "	1.5 "	2 "
Financial Plan Y	1.33 "	2 "	4 "
Financial Plan Z	1.09 "	1.2 "	1.33 "

Least risky combination is Situation A of operating leverage and Financial Plan Z for financial leverage as the combined effect is only 1.45 times ($1.33 \times 1.09 = 1.45$).

Most risky combination is Situation C of operating leverage and Financial Plan Y for financial leverage as the combined effect is 16 times ($4 \times 4 = 16$).

Operating and financial leverages constitute a double-edged sword. They have got tremendous acceleration or deceleration effect on EBIT and EPS. A right combination of these leverages, it may be noted, poses a challenge as well as an important opportunity for management. Proper combination of these leverages is a blessing for corporate growth while an

improper combination may prove a curse. Operating leverage also acts as a check on financial leverage. A high dose of debt financing may be advantageous in companies which have a low operating leverage but not in companies which reach break-even point at a high level of their operational capacity.

Exhibit 5 shows various combinations of operating and financial leverages.

Exhibit 5

Operating leverage	Financial leverage	Combined effect
High	High	This combination is very risky and should preferably be avoided.
High	Low	It indicates discretion on the part of management because adverse effects of high operating leverage have been taken care of by having a financial plan with low financial leverage.
Low	High	It is an ideal situation for the maximization of profits with minimum of risk. In such a situation, management can follow an aggressive debt policy as there is a built-in safety due to low operating leverage.
Low	Low	This combination shows that management is adopting a very cautious attitude and may, in fact, be losing a number of good investment opportunities for expansion or diversification which could be possible by having an additional dose of debt financing. A very cautious attitude has also got a cost. The objective of maximising the interest of the owners of the firm may not be attained by having this combination.

Leverages and financial management.¹ Often corporate management in its enthusiasm to maximise return on equity investment follows a policy of heavy reliance on debt, i.e., trading on thin equity. This is particularly true in our traditional industries like cotton textile, sugar and jute. Most of the companies in these industries adopted this policy of under-capitalisation. So long as they were in sellers' market they could get

¹ Refer to author's article "Limitations of Financial Leverage in Corporate Management", published in the *Economic Times*, December 19, 1971.

the benefits of this type of capital structure but with the return of competitive forces, many of these undertakings have to undergo severe strains and stresses because of their high financial leverage. Operating leverage in most of these companies is also high due to low contribution and high fixed cost with the result that break-even point is reached at a very high degree of their operational capacity leaving a very low margin of safety.

It is important to bear in mind that for stable and steady profit, a firm should reach break-even point at a low level of its operational capacity though its actual operations should be far away from the break-even point. It may further be emphasised that vulnerability is very high near break-even point. It means that a slight change in sales near break-even point results in a disproportionate change in the operating profit. This volatility can be reduced considerably when actual operations are far away from the break-even point. If break-even point in a firm is reached at 85 per cent of its installed capacity, one can imagine the scope of maximisation of profits in such a firm. It has hardly got any margin for increasing its production which for technical reasons cannot exceed 90 per cent or so of the installed capacity. There is a possibility of improvement in such cases only if a big gap exists between their operational capacity and installed capacity.

From the above discussion, the limitation of financial leverage in maximising the return on investment can be noted. Financial leverage is like a super-structure which requires a solid foundation. This foundation is provided by low operating leverage. Mere dependence on high financial leverage without paying adequate attention to operating leverage results in a lop-sided capital structure, high incidence of interest charges, low profits or losses, and ultimately a high corporate mortality rate.

Reliance on debt recently went up in a number of business undertakings due to certain fiscal and environmental developments. *First*, interest payment is a tax-deductible item of expenditure which means a reduction in its explicit cost. *Secondly*, lenders are given a fixed return and they do not share in the enhanced prosperity of the borrowing enterprise. *Thirdly*, capital market has not been much responsive to equity investment and many individuals and institutional investors preferred advance loans or made deposits instead of purchasing equity shares. *Fourthly*, financial institutions became very active to meet the expanding financial requirements of industry by providing term loans. *Finally*, the banks also became active in providing finance not only for current assets but also for fixed assets. These facilities to borrow funds at a cost which is mostly lower than the real opportunity cost resulted in an increase of the ratio of debt

to equity. Even the Controller of Capital Issues allowed the increase of debt to equity from 2 : 1 to 3 : 1.

Corporate management often do not care to complete their homework of analysing their operating leverage and go in for a heavy dose of debt. Debt is just like consumption of fat which is good for a healthy living for a healthy person. A person with high blood pressure and heart trouble has to regulate the intake of fat. Similarly, there are many concerns which require an internal regulation in administering the dose of debt to themselves. Mere availability of debt finance should not induce them to increase its proportion without considering their debt-absorbing and debt-repaying capacity.

8

Approaches to Financial Forecasting

Financial forecasting involves a systematic projection of expected actions of management in the form of financial statements, budgets, etc. The process of financial forecasting involves use of past records, funds flow behaviour, financial ratios, and expected economic conditions in industry as well as in the firm. It is a sort of working plan formulated for a specified period by arranging future activities.

The *advantages of financial forecasting*, as examined below, are varied.

- (i) The tools of financial forecasting form the basis of co-ordinated thinking for making an optimum utilisation of funds, particularly of cash balances. Un-needed cash can be invested in income-producing securities.
- (ii) Financial forecasting is used as a control device to fix standards of performance and evaluating the results. It is thus a big aid in planning corporate growth.
- (iii) It is used to anticipate the financial needs and effects on new policies and to reduce emergency decisions.
- (iv) It serves a good basis not only for discussing funds requirements within the company but also for negotiating confidently with the suppliers of funds.
- (v) It is used to pre-test the financial feasibility of various programmes and in that sense it is of crucial importance because action once taken becomes difficult to retract.

Tools of financial forecasting

Two approaches are used to forecast the financial position and requirement of a business firm: (a) preparation of pro forma financial statements, and (b) preparation of cash budget. Both these approaches are intimately related as they are both based upon the same basic information. It is possible to convert the information on the cash budget into pro forma financial statements and *vice versa*, if the assumptions are known and if information about non-cash items like depreciation can reasonably be determined. It is, however, essential to have the balance sheet at the

beginning of the period to make use of the various accounts in determining the balances at the end of the forecast period.

PRO FORMA FINANCIAL STATEMENT

Financial statements meant to display the effects of future circumstances are described as pro forma statements. Since business decisions are based on the judgment of the influence of future needs on a firm's financial position, these projected statements provide an important base for financial forecasting and planning. They are prepared on many assumptions, hopes and expectations, and give a reasonable estimate of revenues, costs, profits, taxes, dividends, uses and sources of funds. There are no rigid set of rules for constructing these pro forma financial statements because the purpose or objective of preparation is the main determinant of the format. Similarly, the consideration of the degree of accuracy has to be compromised with the time involved in preparing these statements. The formats of these projected financial statements vary according to the ingenuity of the financial executives. Some may be in the nature of back-of-the-envelope calculations as against the detailed financial statements. Certain figures in these statements may be precise while the others are brought by intuitive assumptions. Past relationships in the form of financial ratios have to be paid due attention for projecting the future funds. Some sophisticated statistical approaches have also developed recently which are used in the preparation of such statements.

Projected income statement

The purpose of this statement is to have a fair and reasonable estimate of expected revenue, costs, profits, taxes, dividends and other magnitudes of financial interest. The preparation of a projected income statement is an important step in the budgetary process and this statement is built around the estimate of the expected sales for the forecast period. The sales may be estimated by adopting rule-of-thumb method or after making use of detailed analysis of competitive firms, market research and professional economic surveys. If the period of forecast is long, breakdown of the expected sales by months is found useful particularly in forecasting inventory and sundry debtor levels.

Cost of goods sold. This item may be estimated by using a simple analysis of past operating data by calculating a percentage of sales like 70% or 80% or any magnitude which may arise from an analysis of the past and expectation of future cost and price trend. This rule-of-thumb approach may be replaced by a more detailed approach to consider independently what each component of the cost of goods sold would be in relation to the sales. Calculations are made in terms of materials used,

labour cost, and overhead cost with a view to determining how much of the production, if any, would be used to build up inventories or to reduce inventories of finished goods. If operating plans involve a build up or reduction in finished goods inventories, the costs charged to the sales of the period would also be less or more than the costs of production incurred in the period. This allocation is possible by adjusting all production costs by the difference between the beginning inventory of finished goods and the estimated ending inventory of finished goods, *i.e.*, increases representing inventory build up are subtracted, while decreases representing inventory reduction are added. Another method of obtaining the cost of sales is the determination of expected unit cost and multiplying this by the number of units expected to be sold. In our illustrative problem given at the end of this chapter we have adopted this method.

It would be seen that practical difficulties arise in the methods of inventory costing, price level changes, and the proportion of fixed costs in the over-all cost structure of the company. Detailed schedules and supporting data of operations, material used, labour cost, overhead allocation, and inventory analysis are of great help in estimating cost of goods sold. If such data are not available, as is the case for an external analyst, sweeping estimates can only be possible. It may be emphasised that overhead cost covered by cost of goods sold/used include depreciation.

Selling costs. They are charged to the period in which they are incurred. An estimate of future selling activity and costs is placed on the projected income statement. It is found often that the past ratio of selling expenses to sales is a fairly reliable guide particularly if the company is not planning to have an intensive sales promotion activity.

General and administrative expenses. They are taken as percentages of sales from past experience by some financial analysts. This is not correct because these expenses are composed of fixed and variable elements of costs and a simple percentage of sales figure may be misleading. A large change in sales volume may not lead to a proportional change in these expenses. Some adjustment must be made for this factor.

Other items. Expenses like interest can be estimated from the expected size of borrowing. Income-tax is estimated on the basis of tax regulations or a simple 50% rate may be estimated for simplified calculation. Dividend payment and other allocation of earnings have to be pre-determined fairly well.

The pro forma income statement may serve as a satisfactory estimate of profits for the projected period but it does not serve as a device to control expenses. To achieve this purpose a much more detailed breakdown of expenses is necessary and this subject comes properly under cost accounting and control.

Projected balance sheet

A projected balance sheet is essentially a forecast of expected fund flows and each item on the balance sheet has to be examined and forecast accordingly. The construction of pro forma balance sheet is based upon the information in the pro forma income statement as well as supporting schedules and budgets. Four major steps are involved in projecting balance sheet. First, net investment should be calculated in each of the assets of the company to carry operations at the planned level on the target date (after 6 months or one year or as the case may be). Secondly, liabilities should be listed that can be relied upon without negotiation. Thirdly, net worth of the company should be calculated after adjusting the projected income of the company from the period of forecasting. Finally, projected assets are compared with total source of funds, i.e., liabilities and net worth. If assets exceed the total of expected liabilities and net worth, the difference represents the additional sources that must be negotiated. On the other hand, if the sources exceed the assets required, the excess indicates the additional cash above desired minimum level, or loans and advances which should be reduced on the liabilities side, or cash is available for uses beyond those shown in the original forecasting estimates.

Assets

Cash. Usually there is an assumption for a minimum level desired at the end of the period of forecasting. It can also be balancing or 'plug' figure to equalise assets and liabilities. This is particularly the case when borrowings from banks are taken as fixed.

Debtors (Accounts Receivable). The financial analyst can make use of the sales budget to forecast the magnitude of debtors. Often a ratio analysis on the basis of past performance is used. At the end of the forecast period a certain number of days' debtors or receivables is expected to be outstanding based on past relationship of debtors with sales, collection success so far had, and expected credit policies. Due attention has to be given to minimise the risk of great fluctuation in sales as it may cause an under- or over-statement of debtors. There is another approach for estimating debtors, i.e., by starting with debtors outstanding at the beginning of the period, adding expected credit sales in the forecast period and deducting estimated collections. The balance is the expected amount of debtors at the end of forecast period.

Inventories. The estimate of inventories is prepared on the basis of turnover ratios or through careful estimates of purchase, production, and selling schedules. The selection of a proper ratio or relationship depends on incorporation of past operating data together with an examination of

future policies. The use of schedules in principle involves an analysis of the additions to the beginning inventory balance of purchases of materials or production of goods, and reduction of these inventories through use and sale of materials and goods. If serious ups and downs of activity are expected during the projected period, a more detailed method becomes necessary. One has to appreciate the fact that incorrect inventory forecast can lead to serious shortages of goods or financial strain.

Fixed assets. There is not much difficulty in estimating the amount of fixed assets because outlays for plant and machinery are generally planned in advance. Adjustments, however, have to be made for additions and sales of old assets along with the amount of depreciation. Other assets like pre-paid expenses, patents, good-will, etc., are usually projected by making a simple assumption of 'no change' unless there is specific information to the contrary.

Liabilities

Creditors. Creditors can be estimated by analysing schedules of purchases, payments for the period or by calculating the ratio of accounts payable with purchases or cost of goods sold (relationship of accounts payable to purchases would be more meaningful). The analysis has to start with the opening balance of creditors; add the expected purchases during the period; and deduct the expected payments to find out the estimated figure of creditors.

Loans and advances. This is usually the balancing or 'plug' figure to equalise assets and liabilities, particularly if the purpose of the projected balance sheet is to ascertain the expected amount of borrowings.

Accrued liabilities. They are analysed by examining the pattern of wage payments, tax payments and interest obligations. These patterns can be related to the data of the pro forma balance sheet to determine accruals. This detailed work is often avoided by making the assumption of no-change unless the balance of accrued liability at the end of the period is going much out of line compared with the beginning period balance.

Provisions for taxes and dividends. The analyst has to start with the opening balance of the provision for taxes or dividends, add the new provisions for taxes or dividends, and deduct the actual payment of taxes and dividends in order to find closing balance of the respective provisions.

Long-term debt. It can be projected with ease as a change in this figure depends on long-range plans to raise or repay long-term debt.

Net worth. It has to be adjusted for sale of shares, redemption of shares (in case of redeemable preference shares) or any other such change

in future. The addition to surplus from retained earnings (profits after taxes less expected dividend payment) can easily be calculated. The profit figure comes from the projected income statement. If there are allocations of profits to reserve they can be incorporated in the respective reserves.

Balancing of projected balance sheet

It is likely that the projected balance sheet may not balance because various items are derived independently and according to the policies and conditions expected in the future. Funds flows are assumed without regard to debits or credits. The balancing item is cash account. If a desired minimum balance of cash has been established, the balancing item has to be sought elsewhere. In such circumstances, loans and advances is the plug or balancing figure. The balancing figure can be positive or negative depending on the funds flows assumed. Excess of funds over the forecast needs would give a positive cash balance or a negative loans and advance balance. A negative cash balance or a positive loans and advance balance will signify the need for obtaining additional funds.

Caution. Pro forma financial statements are likely to become sweeping summaries of individual transactions obscuring sizeable funds, needs or financial crisis which may lie between the balance sheet dates. This is particularly true if the financial analyst has not used a very short period of forecast or not prepared monthly statements spread over the period of forecasting.

There is need for a very careful selection of the period and sub-period for the financial forecast as fluctuations in activities in funds are significant for the financial executives particularly in a business which is relatively short of funds and may be having big borrowing needs. Projected balance sheet shows funds requirements or otherwise as on a particular projected date. It does not show varying needs during the course of period. In the case of companies whose needs fluctuate sharply from month to month or seasonally, a forecast of needs based upon projected balance sheets may be highly misleading.

It is usually desirable to show figures in round hundred rupees to ease computations and to emphasise that the figures are only estimates.

CASH BUDGET

Cash budget is a schedule to record cash inflows and outflows over a period with a view to locating the timing and magnitude of cash surplus and shortage. It draws the attention of the financial executive for taking timely action to solve this problem of cash surplus and shortage.

Cash budgets are prepared to forecast liquidity in terms of cash

receipts and payments on a day-to-day, week-to-week, or month-to-month basis as against pro forma financial statements, discussed earlier, which aim at projecting profitability and changes in sources and uses of funds.

Nature of cash budget. It is necessary to bear in mind that net profit from operations, as shown by projected income statement, is not at all the same as the excess of cash receipt over cash disbursement. Many items of cash expenditure are not included as expenses in the income statement; conversely, some items of expense do not require a cash outlay in the same period. The difference between "estimated net profit from operations", and "estimated excess of cash receipts over cash disbursements" is not mere accounting detail. It is of crucial importance in financial forecasting and planning. Cash planning based upon adding the estimated profit for the projected period to the existing cash balance would lead to misleading conclusions.

Some factors that cause a variation between a statement of estimated profit or loss (pro forma income statement) and statement of estimated cash receipts and disbursements (cash budget) are : (i) Sales are included in the income statement but cash payment may not be received until a subsequent period. (ii) Payments to creditors for materials and supplies are charged to costs of operation but may be made in a later period. (iii) Depreciation on fixed assets is charged to costs of operations but does not involve an immediate cash outlay. (iv) Cash receipts from the sale of fixed assets are not an element of operating income but they do increase the availability of cash. (v) Purchase or sale of fixed assets and investment may not affect income but will affect cash balance. (vi) Charges against profit such as amortisation of patents, goodwill, etc., do not require a cash expenditure.

Since changes in income and cash may differ substantially, it is necessary to plan for cash flows. A cash budget is the most effective tool to help planning for the cash requirements and resources of a business. Its primary purpose is to utilise existing and anticipated cash resources to finance operations, pay debts as they mature, pay for expansion considered desirable, and maintain a satisfactory liquid position.

Cash budget is one of the most important tools in the budgetary kit of the financial executive. Companies prepare this budget in different ways, depending upon the background of the financial officer and the type of recording system installed in the firm. We will discuss cash budgets for long and short periods.

Long-range cash forecast. For long-range forecasts, cash budget often resembles the projected source and application of funds statement. In this presentation, cash increases include net income, non-cash tran-

sactions (depreciation, amortisation and accrued expenses), decrease in current assets (except cash), sales of fixed assets, increase in liabilities, and sale of stock; cash decreases cover increase in current assets (except cash), purchase of fixed assets, investments in new securities, decrease of liabilities and dividend payments. Form A illustrates the process for projecting cash by this method which is called "the adjusted net income statement method".

Form A

Form on the Adjusted Net Income Method of Forecasting Cash

Cash balance, beginning of the year

Add:

- (i) Estimated net income
- (ii) Non-cash transactions:
 - Depreciation
 - Amortisation
 - Accruals
- (iii) Decreases in assets:
 - Accounts receivable
 - Inventory
 - Marketable securities
 - Fixed assets
- (iv) Increases in liabilities:
 - Accounts payable
 - Notes payable
 - Loans and advances
 - Taxes payable
 - Long-term debt
- (v) Increases in net worth:
 - Sale of stock

Subtract:

- (i) Increases in assets:
 - Accounts receivable
 - Inventory
 - Marketable securities
 - Fixed assets
- (ii) Decreases in liabilities:
 - Accounts payable
 - Notes payable
 - Taxes payable
 - Long-term debt

(iii) Decreases in net worth :

Retirement of stock

Dividend payments

Cash balance end of the year.

The long-term cash forecast is also presented by pro forma funds flow statements with aggregate figures under such captions as : funds provided by operations, working capital changes, plant and equipment expenditures, tax provision, interest and dividend payments, and proceeds of new financing.

Unlike short-range cash forecasts, which are detailed estimates, long-range cash forecasts attempt to indicate the effect of proposed long-range plans such as acquisitions, new product development, and long-range changes on the company balance sheet three, five or even ten years in the future. The long-range cash forecast is primarily useful in appraising proposed capital projects and in arranging long-term borrowing. It shows whether enough cash will be generated internally to support the working capital requirements of future operations. It indicates when the company will possibly run out of cash, and why. It also shows how much amount will be borrowed, and how long it will take to pay it back. The long-range cash projection often proves valuable in obtaining satisfactory loan accommodations. The long-range cash forecast is most important to fast growing companies that need to borrow additional funds.

The most commonly used period for long-range cash forecasts is five years. Many companies, however, do not attempt to forecast more than one or two years in the future, because their businesses are unusually sensitive to swings in general business activity. Through experience, such companies have found that forecasts of greater length are so inaccurate that it is not worth the effort to make them. Some managements prepare long-range cash forecasts only as occasion requires, and establish their length in accordance with the immediate purposes they are to serve.

The principal problem in long-range cash forecasting is to obtain accurate forecasts of other trends upon which the cash position of the company depends. To overcome this problem, considerable effort is required to refine the forecasting procedures and to obtain agreement among interested parties with respect to estimates of future sales, investments in plant and equipment, and raw-material and labour costs. Further, companies find that the more frequently a long-range forecast is revised, the greater are the chances for accuracy.

Cash budget for short period. For short-term forecasting it is customary to estimate directly each item affecting cash because this approach provides an opportunity for more detailed analysis. The most

important *sources* are cash sales, collection of accounts receivables and certain non-operating transactions that generate cash, such as interest or dividend receipts and sale of capital assets. Cash *disbursements* are made for accounts payable, salaries and wages, operating expenses, rent, insurance, interest, income-tax, fixed assets, reduction of loans and dividends. An illustration of this process is shown in Form B.

The estimates or budgets of sales, purchases, production, etc., form the basis for cash budget. It considers only cash receipts, regardless of

Form B

*Form of the Direct Estimating Method
of Forecasting Cash*

	January	February	March	Remaining Months
	Rs	Rs	Rs	Rs
Cash increases :				
Cash sales				
Collections				
Interest received				
Dividends received				
Sale of capital assets				
Long-term loans				
Total increases	Rs	Rs	Rs	Rs
Cash decreases :				
Accounts payable				
Salaries and wages				
Operating taxes				
Rent, light, heat				
Insurance				
Interest				
Income taxes				
Capital expenditure				
Repayment of loans				
Dividends				
	Rs	Rs	Rs	Rs
Cash balance, beginning of period				
Net change				
Cash balance, end of period	Rs	Rs	Rs	Rs

their nature (whether capital or revenue) and period (whether they relate to past, current or future). Similarly, cash budget recognises payments irrespective of the particular point of time at which the liability for expenditure arose and the nature of cash payment (whether capital or revenue) is not relevant. Moreover, it does not show non-cash expense like depreciation, amortisation of patents, etc.

At the time of preparing cash budget one has to make an assumption of collection period and an analysis of recovery from debtors in the light of credit terms given in the past. If the assumption of collection period is one month, it means that the monthly cash budget for February will show the receipt for sales made in January. However, the analysis of collection, in practice, from debtors may show that 50% of collections are made in the second month of sale, 30% in the third month and 20% in the fourth month. This experience should be used in making a fair and accurate estimate of cash receipts from debtors. Similar adjustment is required for cash payment to creditors. For certain payments like taxes and dividends, however, there may be fixed months.

After incorporating all the cash receipts and payments in the cash budget, one can determine cash surplus or shortage for each sub-period (daily, weekly, monthly as the case may be). This surplus or shortage position is added to or subtracted from the cash balance in hand at the beginning of the forecast period. A cumulative running total of these additions and subtractions shows when the minimum cash balance (if desired) is reached, when the need for borrowing begins, how much cash is required, and when the repayment of loan can be made. Repayment is possible if enough cash is generated within the period of forecast; otherwise either the period of cash budget is extended or long-term funds have to be raised to fill the gap.

Where the problem of cash is particularly important because it is scarce or the company invests cash balances each day, forecasts of cash flows are prepared on a daily basis as a guide to financial management. Since cash flows constantly change, continuous forecasting is desirable in order to provide the guidance for daily and weekly cash management. The financial officer responsible for this management requires regular reports of cash balances. Top level non-financial management want to keep abreast of the company's changing cash position in order to co-ordinate over-all operations.

PROBLEMS IN EFFECTIVE FINANCIAL FORECASTING

All of the company's operations virtually affect its need for cash. Most of these data covering operational areas are, however, outside the direct responsibility of the financial executive. Unless top management

appreciates the value of good financial forecasting and insists that planning is given due attention throughout the organisation, there will be a continuing problem for the financial executive to get the necessary data on which to base his financial forecasts.

Most business undertakings operate in an atmosphere of change and predictions about inherently uncertain future are quite likely subject to error. Some business firms are highly vulnerable to sharp fluctuations in sales, particularly those which are dependent on the vagaries of the weather (companies associated with agricultural inputs and outputs). They face a lot of difficulty in financial forecasting assignments. Before such companies the choice is not one of planning or not planning. It is rather one of the degree to which the difficult job of planning is organised. The firm whose future operations are inherently difficult to plan should try to make its forecasting as helpful as possible to enable its management to stay on top of its finances. Attention is required to the following considerations :

(i) Management should recognise the likely margin of errors inherent in its forecasts in order to avoid the hazards involved in attaching a false sense of accuracy to projected data based on basically tenuous assumptions.

(ii) Several different forecasts should be prepared where varying assumptions as to key variables can reasonably be made. This would give enough flexibility to the financial executive. It means that instead of one single forecast there should be a range of financial forecasts. A single forecast is a composite of estimates which can at best be an approximation of what will really happen. But as the uncertainty of future will still remain, it is suggested that the financial executive should prepare a few sets, instead of one, of projected financial statements and cash budgets to study the range of expected performance from worst to the best possible outcome. It is advisable to rework forecasts with changes in certain key figures like sales volume, inventory levels, balances of debtors, etc.

(iii) Forecasts should not be considered sacred or unchangeable. There should be a scope left for revision of the forecast as the future unfolds. In a dynamic firm forecasts are adjusted almost continuously otherwise they will not be helpful in financial planning.

(iv) Maintenance of large cash balance is considered advisable in firms with high degree of unpredictability. This large cash balance can minimise the risk of forecasting within given limits.

(v) Key assumptions of forecast should always be spelt out carefully in order to give the management a better basis for understanding the figures with a view to forming judgment and, if necessary, make subsequent revisions of the forecast.

(vi) Experience with forecasting in a company leads to development of improved methods, both of preparation of forecasts and of their interpretation. Learning by trial and error has got a significant place in forecasting.

(vii) There is every reason not to forecast in greater details than the uncertainties of the situation permit. Detailed income statements and balance sheets of a company projected over a period of four years may not be found useful as against a simple financial forecast showing a few broad categories of inflows and outflows over a period of one year.

Use of financial plans and budgets. Forecasts, or long-range plans, are necessary in all the firm's operations. This forecast of financial requirements is used to draw up the strategic financing plans during the planning period. The company might, for example, plan to meet its financial requirements with retained earnings in 1977, short-term bank debt during 1978, float a debenture issue in 1979, use retained earnings in 1980, and finally sell an issue of ordinary shares in 1981. Fairly long lead times are essential when companies sell debentures or shares, otherwise they might be forced to go into the market during unfavourable periods.

In addition to the long-range planning, the financial manager must also make accurate short-run forecasts to be sure that funds will be available to meet seasonal and other short-run requirements. He might, for example, have a meeting with his banker to discuss his company's needs for funds during the coming year. The cash budget would be very useful for having discussion with a view to determining the line of action in the coming year. The financial manager would have calculated the key financial ratios to show both his actual and his projected financial positions to the banker.

Problem. The preparation of pro forma financial statements and cash budget and their intimate relationship can be grasped by the study of the following simple problem.

The Hypothetical Company is producing a single product. Its Balance Sheet as on June 30, 1976 was as follows:

Liabilities & Capital	Rs	Assets	Rs
Loans from Bank	5,000	Cash	14,800
Creditors	12,000	Debtors	9,600
Provision :		Inventories :	
Taxation	5,000	Raw material	13,600
Dividends	4,000	Finished goods	2,400
Net Worth :		Machinery	
Share capital	40,000	& Equipment	52,000
Reserves & Surplus	10,000	Less Depreciation	16,400
			35,600
	Rs 76,000		Rs 76,000

Its expected sales, production, inventory and purchase for a period of six months provide the information given in the Table on next page.

We have to prepare (i) Pro Forma Balance Sheet, (ii) Pro Forma Income Statement, and (iii) Cash Budget for forecasting the financial position of the company for this period of six months after considering the following assumptions :

1. The finished goods are valued at 60 paise per unit composed of 40 paise for materials, 10 paise for labour and 10 paise for factory overhead including depreciation.
2. Sales revenue of current month is collected in the next month.
3. Company enjoys credit of one month from its creditors and also a cash discount of 2% if payment is made within 10 days.
4. Company plans to purchase a machine for Rs 2,000 in September but its payment is expected to be made in October.
5. Tax rate is assumed at 50%. Company is expected to pay two quarterly instalments for taxes of Rs 5,000 each in July and October.
6. Company makes a provision of Rs 5,000 for dividends at the end of the projected period and is expected to pay Rs 3,750 as dividend relating to previous period in September.
7. 'Other manufacturing expenses' include an amount of Rs 2,600 for depreciation.

	July	Aug.	Sept.	Oct.	Nov.	Dec.
<hr/>						
<i>Finished Goods</i>	Units					
Beginning inventory	4,000	26,000	42,000	46,000	50,000	38,000
Production	32,000	32,000	40,000	44,000	44,000	44,000
Total	36,000	58,000	82,000	90,000	94,000	82,000
Sales	10,000	16,000	36,000	40,000	56,000	52,000
Ending inventory	26,000	42,000	46,000	50,000	38,000	30,000
<hr/>						
<i>Raw Material</i>						
Beginning inventory	34,000	34,000	42,000	46,000	46,000	46,000
Purchases	32,000	40,000	44,000	44,000	44,000	40,000
Total	66,000	74,000	86,000	90,000	90,000	86,000
Used	32,000	32,000	40,000	44,000	44,000	44,000
Ending inventory	34,000	42,000	46,000	46,000	46,000	42,000
<hr/>						
<i>Finished Goods</i> (60 Paise per unit)	Rupee amounts					
Beginning inventory	2,400	15,600	25,200	27,600	30,000	22,800
Production	19,200	19,200	24,000	26,400	26,400	26,400
Total	21,600	34,800	49,200	54,000	56,400	49,200
Cost of sales	6,000	9,600	21,600	24,000	33,600	31,200
Ending inventory	15,600	25,200	27,600	30,000	22,800	18,000
<hr/>						
<i>Raw Materials</i> (40 Paise per unit)						
Beginning inventory	13,600	13,600	16,800	18,400	18,400	18,400
Purchases	12,800	16,000	17,600	17,600	17,600	16,000
Total	26,400	29,600	34,400	36,000	36,000	34,400
Used	12,800	12,800	16,000	17,600	17,600	17,600
Ending inventory	13,600	16,800	18,400	18,400	18,400	16,800

Hypothetical Company
Pro Forma Balance Sheet

	Actual Balance Sheet as on 30.6.1976	Pro Forma Balance Sheet as on 31.12.1976
Assets :	Rs	Rs
Cash	14,800	6,722 (1)
Debtors	9,600	52,000 (2)
Inventories :		
Raw Material	13,600	16,800 (3)
Finished Goods	2,400	18,000 (4)
Machinery & Equipment	52,000	
Less Depreciation	16,400	35,000 (5)
	<u>76,000</u>	<u>1,28,522</u>
Liabilities and Capital :		
Loan from bank	5,000	5,000
Creditors	12,000	16,000
Provision : for taxation	5,000	26,136 (6)
for dividends	4,000	5,250 (7)
Share Capital	40,000	40,000
Reserves and Surplus	10,000	36,136 (8)
	<u>76,000</u>	<u>1,28,522</u>

Notes :

(1) Balancing or Plug figure. It is the same amount as shown in Cash Budget (p. 142).

(2) Debtors :	Rs
As per last Balance Sheet	9,600
Add Sales	2,10,000
	<u>2,19,600</u>
Less Collection	1,67,600
	<u>52,000</u>

(3) Inventory of Raw Materials	
42,000 units \times 40 Paise =	16,800
(4) Inventory of Finished Goods	
30,000 units \times 60 Paise =	18,000
(5) Machinery	52,000
<i>Add</i> New machinery	2,000
	<hr/>
	54,000
<i>Less</i> Depreciation (16,400 + 2,600)	19,000
	<hr/>
	35,000
	<hr/>
(6) Provision for taxes :	
As Per last Balance Sheet	5,000
<i>Add</i> New provision	31,136
	<hr/>
	36,136
<i>Less</i> Taxes paid	10,000
	<hr/>
	26,136
	<hr/>
(7) Provision for dividends :	
As per last Balance Sheet	4,000
<i>Add</i> New provision	5,000
	<hr/>
	9,000
<i>Less</i> paid	3,750
	<hr/>
	5,250
	<hr/>
(8) Reserves and Surplus :	
As per last Balance Sheet	10,000
<i>Add</i> Retained Earnings	26,136
	<hr/>
	36,136
	<hr/>

Hypothetical Company
 Pro Forma Income Statement
 for six months ending December 31, 1976

	Rs	Rs
Sales		2,10,000
Cost of Goods Sold :		1,24,128
Raw materials used	92,528	
Direct labour	23,600	
Other manufacturing expenses :		
Direct factory	21,000	
Depreciation	2,600	
	23,600	
Total cost of production	1,39,728	
Opening inventory	2,400	
	1,42,128	
Less Closing inventory	18,000	
	1,24,128	
Gross Profit		85,872
Administrative expenses	9,000	
Selling expenses	14,600	
	23,600	
Operating profit		62,272
Taxes (50%)		31,136
		31,136
Dividend		5,000
		26,136
Retained earnings		26,136

Notes :

(a) Sales have been shown in this simple example at the estimated figure of 2,10,000 units at Re 1 each. Difficulties arise in estimating the volume and value of sales.

(b) Cost of goods sold is estimated after considering material consumption (cash discount of 2% on purchases has been adjusted on the assumption that company will be in a position to take its advantage), depreciation (Rs 2,600 included in 'other manufacturing expenses') and after adjustment for opening and closing inventory of finished goods. Practical difficulties arise in estimating cost of goods sold for an external analyst who often has to make a sweeping assumption by treating cost of goods as a particular percentage of sales based on analysis of past performance of the company.

(c) Other items of this statement are self-explanatory.

*Hypothetical Company***Cash Budget**

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Rs	Rs	Rs	Rs	Rs	Rs	Rs
Receipts :							
Collections from Debtors	9,000	10,000	16,000	36,000	40,000	56,000	1,67,600
Payments :							
Payments to Creditors	11,760	12,544	15,680	17,248	17,248	17,248	91,728
Wages	3,200	3,200	4,000	4,400	4,400	4,400	23,600
Direct expenses	3,400	3,400	3,400	3,600	3,600	3,600	21,000
Administrative expenses	1,400	1,400	1,400	1,600	1,600	1,600	9,000
Selling expenses	1,800	1,800	2,600	2,800	2,800	2,800	14,600
Machinery				2,000			2,000
Taxes	5,000			5,000			10,000
Dividends			3,750				3,750
	26,560	22,344	30,830	36,648	29,648	29,648	
Monthly cash surplus (deficit)	(16,960)	(12,344)	(14,830)	(648)	10,352	26,352	
Cash balance (beginning of month)	14,800	(2,160)	(14,504)	(29,334)	(29,982)	(19,630)	
Net monthly cash surplus (deficit)	(16,960)	(12,344)	(14,830)	(648)	10,352	26,352	
Cash balance (end of month)	(2,160)	(14,504)	(29,334)	(29,982)	(19,630)	6,722	

Reconciliation of pro forma financial statements and cash budget. The Pro Forma Balance Sheet shows expected cash balance at Rs 6,722. It is the same as shown by Cash Budget. The projected balance sheet method of financial forecasting, however, fails to provide information regarding fluctuations in cash requirements and resources during the period of forecast. The financial position of the Company as shown by the projected balance sheet on December 31, 1976 indicates that it will have balance of cash of Rs 6,722 which is more than the amount of loan taken from bank, i.e., Rs 5,000. Thus, liquidity position of the company does not require much attention. But if we study the cash budget, the real magnitude of the liquidity problem is revealed. The Company will have to borrow from the first month of cash budget, i.e., July, and arrange for peak requirement of cash which goes up to nearly Rs 30,000 in September and October. In other words, the Pro Forma Balance Sheet can help in analysing the financial position of the company only on a specific date of the projected period. The intra-period variations in the cash requirements and resources of the company can be studied only from Cash Budget. Therefore, both these methods of financial forecasting have to be used in unison. They are complementary rather than competitive. This intimate relationship is due to the fact that they are based upon the same basic information.

ADDITIONAL METHODS OF FINANCIAL FORECASTING

In addition to the two approaches discussed earlier to forecast the financial requirements of a firm, i.e., preparation of *pro forma* financial statement and preparation of cash budget, there are four other methods used in financial forecasting: (1) per cent to sales; (2) scatter diagram, or simple linear regression; (3) curvilinear simple regression; and (4) multiple regression.

Per cent of sales. The per cent of sales method of financial forecasting assumes that certain balance sheet items vary directly with sales, i.e., the ratio of a given balance sheet item to sales remains constant. Thus a good sales forecast is an essential foundation for forecasting financial requirements. Under this approach, the firm's needs in terms of the percentage of annual sales envisaged in each individual balance sheet item are expressed. As an example, consider the hypothetical XYZ Company whose balance sheet as on December 31, 1976 is shown on the next page.

The Company's sales are running at about Rs 18 lakhs a year; the profit margin after tax on sales is 4 per cent. During 1976, the Company earned Rs 40,000 after tax and paid out Rs 20,000 in dividends and it plans to continue paying out half of net profits as dividends. How much

XYZ Company

Balance Sheet as on December 31, 1976

Liabilities		Assets	
	Rs		Rs
Share Capital	2,00,000	Current Assets :	
Reserves	2,00,000	Cash	20,000
Long-term Debt	1,40,000	Debtors	1,70,000
Creditors	1,00,000	Inventories	2,00,000
Provisions	50,000	Fixed Assets (net)	3,00,000
	<u>6,90,000</u>		<u>6,90,000</u>

additional financing will be needed if sales expand to Rs 16 lakhs during 1977 ? The calculating procedure using the per cent of sales method is explained below :

First, identify those balance sheet items that can be expected to vary directly with sales. In the case of XYZ Company, this step applies to the following assets—a higher level of sales necessitates more cash for transaction, more debtors and higher inventory levels, but no additional fixed plant capacity. On the liability side, creditors as well as provisions may be expected to increase with increase in sales. Retained earnings will go up as long as the Company is profitable and does not pay out 100

*XYZ Company*Balance sheet items expressed as a per cent
of Sales, December 31, 1976

Liabilities		Current Assets	
Share Capital	N.A.	Cash	2.0
Reserves	N.A.	Debtors	17.0
Long-term Debt	N.A.	Inventories	20.0
Creditors	10.0	Fixed Assets (net)	N.A.
Provisions	5.0		
	<u>15.0</u>	Total Assets	39.0

N.A. = Not applicable.

Assets as per cent of Sales	39.0
Less : Spontaneous increase in liabilities	15.0
Per cent of each additional rupee of sales that must be financed	<u>24.0</u>

per cent of earnings. However, share capital, reserves and long-term debt would not increase spontaneously with an increase in sales.

The items that can be expected to vary directly as sales are tabulated as a percentage of sales in the statement given on page 144.

For every Re 1 increase in sales, assets must increase by Rs 0.39. This Rs 0.39 must be financed in some manner. Creditors will increase with sales, as will provisions; these two items will supply Rs 0.15 of new funds for each Re 1 increase in sales. Subtracting 15 per cent for spontaneously generated funds from the 39 per cent funds requirement leaves 24 per cent. Thus for each Re 1 increase in sales, XYZ Company must obtain Rs 0.24 of financing either from retained earnings or from external sources.

In the given example, sales are scheduled to increase from Rs 10 lakhs to Rs 16 lakhs or by Rs 6 lakhs. Applying the 24 per cent of expected increase in sales, leads to the conclusion that Rs 1,44,000 will be needed. Some of that need may be met by retained earnings. Total sales during 1977 will be Rs 16 lakhs; if the company earns 4 per cent after tax on this volume, profits will amount to Rs 64,000. Assuming that the 50 per cent dividend pay out ratio is maintained, dividends will be Rs 32,000 and Rs 32,000 will be retained. Subtracting retained earnings from Rs 1,44,000 that was needed leaves a figure of Rs 1,12,000—this is the amount of funds that must be obtained through borrowing or by equity. This very process may be expressed in equation form :

$$\text{External funds required} = \frac{A}{S} (\Delta S) - \frac{L}{S} (\Delta S) - MS_2(1-d)$$

where,

$\frac{A}{S}$ = assets that increase spontaneously with sales as a per cent of sales

$\frac{L}{S}$ = those liabilities that increase spontaneously with sales as a per cent of sales

ΔS = change in sales

M = Profit margin

S_2 = Total Sales projected for the year

d = the dividend payout percentage.

For XYZ Company, then

External funds required

$$= 39(6,00,000) - 15(6,00,000) - 0.04(16,00,000) (.5)$$

$$= 24(6,00,000) - 0.02(16,00,000)$$

$$= \text{Rs } 1,12,000$$

Attention may be drawn to an event if XYZ Company's sales forecast for 1977 had been only Rs 10,30,000 or a 3 per cent increase. Applying the formula we find the external funds requirement as follows :

$$\begin{aligned}\text{External funds required} &= 24(30,000) - 02(10,30,000) \\ &= (13,400)\end{aligned}$$

In this case no external funds are required. In fact, the Company will have Rs 13,400 in excess of its requirement. It may plan to increase dividends, retire debt, or seek additional investment opportunities. This example shows not only that higher levels of sales bring about a need for funds but also that while small percentage increases can be financed through retained earnings, largest increases cause the firm to go into market for outside capital. In other words, a certain level of growth can be financed from internal sources but higher levels of growth require external financing.

The per cent of sales method of forecasting financial requirements is neither simple nor mechanical. Experience in applying the technique in practice suggests the importance of understanding (i) the basic technology of the firm; and (ii) the logic of the relation between sales and assets for the particular firm in question. A great deal of experience and judgment is required to apply the technique in actual practice. This method is most appropriately used for forecasting relatively short-term changes in financing needs. It is less useful for long-term forecasting.

Scatter diagram or simple regression method. An alternative method used for forecasting financial requirements is the scatter diagram or simple regression method. The scatter diagram is a graphic presentation of joint relations. Proper use of the scatter diagram method requires practical aptitude but not necessarily statistical sophistication. The scatter diagram method is superior over the per cent of sales method for long-range forecasting. As in all financial forecasting, the sales forecasting is the starting point. The financial manager is given the sales forecast or he may participate in formulating it. Based on past data of sales and inventory for different years, a line that fits the scatter of points or the line of best fit has to be drawn. It is also known as the regression line. Of course, all points seldom fall exactly on the regression line. The line itself may be linear or curved.

The scatter diagram method differs from the per cent sales method principally in that it does not assume that the line of relationship passes through the origin. In its simplified form, the scatter diagram method calls for calculating the ratio between sales and the relevant balance sheet item at two points in time, extending a line through these two points and using the line to describe the relationship between sales and the balance sheet item. The accuracy of the regression is important if more points

are plotted and the regression line can be fitted methodically by a technique known as the method of least squares as well as drawn in by free hand.

Curvilinear simple regression method. Linear scatter diagram or linear regression, assume that the slope of the regression line is constant. This condition does frequently exist but it is not a universal rule. The application of curvilinear simple regression of forecasting financial relationships, therefore, becomes necessary.

Multiple regression method. A more sophisticated approach to forecasting a firm's assets calls for the use of multiple regression analysis. In simple regression, sales are assumed to be a function of only one variable. In multiple regression, sales are recognised to depend upon a number of variables. So far we have been assuming that the observations fall exactly on the relationship line. This implies perfect correlation, something that, in fact, seldom happens. In practice, the actual observations would be scattered above the regression line. What causes the deviations from the regression line? One answer, if linear regression is used, is that the actual line of relationships might be curvilinear. Even if curvilinear regression is used, deviations still occur and we have to seek other explanation for the scattered points around the regression line. The most obvious answer is that inventories are determined by factors other than sales. Inventory levels are certainly influenced by work stoppages at the plant of suppliers. Multiple regression technique takes into account additional variables into the analysis to improve financial forecasting.

The need to employ more complicated forecasting techniques varies from situation to situation. For example, the percent of sales method may be adequate for making short-run forecasts where conditions are relatively stable, while curvilinear multiple regression may be deemed essential for longer-run forecasting in more dynamic undertakings. As in all other applications of financial analysis, the cost of using more refined techniques must be balanced against the benefits of increased accuracy.

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CASE STUDIES

8.1. PROBLEM ON (i) CASH BUDGETING AND

(ii) PROFORMA INCOME STATEMENT & BALANCE SHEET

The Progressive Manufacturing Company had a period of rapid sales growth. But during this very period, there was a relatively greater build up of stock of finished goods as the management wanted to meet all customer demands promptly. This building up of stock of finished goods involved a strain upon the Company's finances and the Managing Director of this Company wished to institute a period of level production. He also contemplated to make determined efforts to reduce the size of the Company's finished goods inventory and also to exercise pressure upon its customers to pay within 30 days (period of credit allowed). Outstanding amount of accounts receivables in August 1976 represented 60 days of sales. The Managing Director asked the treasurer to prepare a cash budget for the next six months to ascertain the timing and amount of funds to be obtained under the new policies. The treasurer gathered the following information for the preparation of Cash Budget :

(i) Sales : Estimate of sales for the next six months was as follows :

September	Rs 1,450,000
October	Rs 1,525,000
November	Rs 1,625,000
December	Rs 1,750,000
January	Rs 1,825,000
February	Rs 1,900,000

(Sales in July were Rs 12,75,000 and in August Rs 13,50,000).

The management expected to bring the collection period from 60 days on August 31 to 45 days on September 30, and to 30 days by October 31, and thereafter to keep the collections current.

(ii) The level production plan would involve the following monthly expenditures :

- (a) Purchase of raw materials : Rs 4,30,000 (payment net within 45 days; July purchases were Rs 5,00,000 and August purchases were Rs 4,50,000).
- (b) Wages and salaries : Rs 1,45,000 (paid in the month of occurrence).
- (c) Supplies, maintenance and overhead : Rs 2,80,000 (paid in the month of occurrence).

(iii) Selling and administrative expenses were expected as follows: 15% of sales in September and October, 14% of sales in November and December and 13% of sales in January and February—all paid within the month of occurrence.

(iv) Interest and dividends payable in January were Rs 5,00,000; instalments of income-tax due were Rs 2,50,000 on September 15, Rs 2,50,000 on December 15 (25% of estimated 1976 tax liability).

(v) Payments on notes payable were scheduled at Rs 5,00,000 each in October and January.

Prepare the Cash Budget. What would be the amount of the funds generated or required (and their timing) if the collection period remained at 60 days ?

From the cash budget prepared for the Progressive Manufacturing Co., prepare a pro forma income statement for the two months ended October 31, and a pro forma balance sheet as on October 31. Following supplementary information will be helpful.

The Progressive Manufacturing Company

Balance Sheet as on August 31, 1976

	Rs		Rs
Accounts payable	700	Cash	525
Notes payable	3,030	Accounts receivables	2,625
Accrued liabilities	1,490	Raw materials	1,920
Accrued taxes	250	Finished goods	4,260
	<hr/>		<hr/>
Current liabilities	5,470	Current assets	9,330
	<hr/>		<hr/>
Long-term debt	3,500	Fixed assets	8,240
Preference share capital	1,000	Accumulated depreciation	3,490
Ordinary share capital	3,500		<hr/>
Surplus	1,890	Net fixed assets	4,750
		Other assets	1,280
			<hr/>
Total liabilities and net worth	<hr/> 15,360 <hr/>	Total assets	<hr/> 15,360 <hr/>

(i) Depreciation was provided at Rs 35,000 per month.

(ii) Cost of goods sold averaged (past experience) 70% of sales.

(iii) Materials usage during September and October was expected to be Rs 5,50,000 per month.

- (iv) Assume income-tax at 50%.
- (v) Assume no changes in other assets, accrued liabilities and long-term debt.

8.2. RAJHANS PHARMACEUTICALS

On April 14, 1960, Mr. Vinod, in-charge of the affairs of the Rajhans Pharmaceuticals, a manufacturing unit of Nihalchand Private Limited, asked Mr. Tuli, the financial controller, to examine the financial effects of a proposal to acquire a controlling interest in Subhash Chemical Company (SCC) for a sum of Rs 12 lakhs. There had been previous meetings of the Company's top officials in which Mr. Tuli had also participated. The decision to acquire the controlling interest in SCC had been taken in an earlier meeting.

Rajhans Pharmaceuticals was set up in 1947 for manufacturing fine chemicals and pharmaceuticals by Nihalchand Private Limited (NPL). NPL was an old industrial house of repute in India and had assumed the form of a group controlling a number of companies with diverse interests.

In the initial stage, the Company concentrated on the manufacture of important basic drugs and fine chemicals in India. Production of fine chemicals, however, required a vast outlay on research and development. The management felt that the progress in fine chemicals would be slow due to restricted demand which would not permit the line to bear the cost of research and development for many years to come. Rajhans Pharmaceuticals, therefore, negotiated a collaboration agreement in 1950 with Rex, Inc. of New York for technical know-how in their range of products. Under this agreement, Rajhans Pharmaceuticals got from its collaborators not only technical assistance for the manufacture of their brand products but also benefit of their research programmes along with an opportunity of getting its personnel trained in these laboratories. Rex, Inc. was spending annually more than Rs 150 lakhs on medical research alone.

After 1950, Rajhans Pharmaceuticals made rapid progress and its turnover increased substantially every year. For the last few years, while it had been planning its operation on the basis of 20% increase in its annual turnover over the previous year, the years ended with even better results. Because of government control, the prices had to be reduced substantially in 1959, in some cases as much as 40% of the former price. As a result, the Company anticipated a loss for the year 1959-60. Despite heavy reduction in prices, the turnover of the Company increased and the year 1959-60 closed with a profit of over Rs 26 lakhs (Exhibits 1 to 3).

In an earlier discussion, Mr. Tuli had stated that though the financial outlay for acquiring the control in SCC was small, the financial effects on Rajhans Pharmaceuticals could be severe because of vast capital expenditure on the approved projects during the next two or three years. On the other hand, Mr. Vinod was hopeful that the bank would agree to lower the margin of retention from 25% to 15% on the hypothecated inventories and outstandings due from the government with a maximum cash credit limit of Rs 200 lakhs. Further, an increase in the cash credit limit could also be negotiated, if necessary. Mr. Tuli, therefore, began to analyse the position for the year 1960-61 on the assumption of a 20% increase in turnover over 1959-60 though he felt that the turnover might go up even by 30%.

Rajhans Pharmaceuticals maintained a large number of distribution points all over the country where sizeable stocks were kept to meet the demand. These distribution points were thought to play a very important part in the growth of the company's turnover. The maintenance of such distribution points necessitated a substantial locking up of working capital in inventories. The Distribution Department of Rajhans Pharmaceuticals normally planned finished inventories to the extent of two months' turnover. The raw-materials and general items maintained in the store, on an average, covered about 5 months' production. About 20% of the raw-material inventory was imported involving one month's advance payment by negotiating letters of credit; the remaining (80%) stock was obtained from within the country. The payment for slightly over half indigenous supply was made, on an average, 10 days in advance; and for the balance payment was required within a month of the receipt of goods. General stores were being procured from the local market against one month credit. Though, in general, the policy was to spread out the purchases evenly throughout the year, in view of the government's import policy announced in April and in October of each year most of the imported materials had to be arranged for just after the grant of import licences. The stock of processed materials normally accounted for about 26 days' production in terms of value.

Rajhans Pharmaceuticals routed its sales through stockists to whom sales documents were despatched through banks. It discounted these documents and thereby got money within a day or two. However, the sales to the government and other recognised institutions were on credit. These latter receivables amounted to about 10% of the entire turnover and remained outstanding for a period of about $2\frac{1}{2}$ months. Mr. Tuli thought it fit to maintain a minimum cash balance of Rs 10 lakhs.

Nihalchand Private Limited had to pay income-tax and super-tax at 45% on the profit of Rajhans Pharmaceuticals. Out of the balance, a minimum of 50% had to be distributed as dividends to avoid penal taxes. Whereas taxes had to be paid in advance in three equal instalments in

September, December and March every year, the dividend was normally paid in October. Mr. Tuli expected the profit before provision of depreciation, interest, development rebate and taxes to bear the same percentage to sales as in 1959-60. The depreciation and development rebate were to be calculated on the basis given in the Income-tax Act. The depreciation, on an average, worked out at 9% on the written down value of the fixed assets at the beginning of the year plus 5% on the additions made thereto and put to use during the year. The development rebate, for the purpose of calculating tax, was 25% of the value of the plant and machinery installed during the year.

Rajhans Pharmaceuticals had budgeted a huge capital expenditure programme of about Rs 10 lakhs every year for a period of three years to provide for the forecasted growth in sales. It had also undertaken the modernization and installation of its plant in a new building involving an expenditure (spread over a period of three years ending March, 1963) of Rs 45 lakhs, Rs 26 lakhs and Rs 36 lakhs respectively. Moreover, it had a programme for the manufacture of glass vials—an important packaging material required for antibiotic fillings—which were not only difficult to procure in the country but also expensive. Rajhans Pharmaceuticals had a plan to manufacture glass vials in a section of its own automatic plant. The construction of the building for this purpose had just begun. It was estimated that the erection of plant would cost Rs 50 lakhs (building Rs 10 lakhs and machinery Rs 40 lakhs). This sum was to be spent equally over years, i.e., Rs 10 lakhs on the building and Rs 15 lakhs on the machinery in the first year, and the balance on the machinery in the next year. This plant was expected to go into production by the end of March 1962. Mr. Tuli felt that out of all these projected capital expenditures, only plant and machinery worth Rs 17.16 lakhs (including Rs 7.16 lakhs under the head capital works in progress shown as on March 31, 1960) would be installed and put to use.

Besides cash credit arrangements on the hypothecated inventory and receivables from the government, Rajhans Pharmaceuticals had another arrangement with the bank for a cash credit limit of Rs 100 lakhs secured by debentures of an equal amount. The terms of this agreement provided that the value of debentures issued at any time should not exceed 50% of the written down value of fixed assets as on March 31, 1958 plus 50% of the additions made thereto from time to time. The Company had not yet drawn any money under this latter arrangement.

Exhibit 1

Rajhans Pharmaceuticals

Summarised Income Statement for the year ending March 31

(Rupees in lakhs)

	1956*	1957	1958	1959	1960
	Rs	Rs	Rs	Rs	Rs
Sales	214.07	236.19	326.60	361.77	455.26
Cost of goods sold :					
Materials Consumed†	116.96	112.70	162.91	204.89	214.45
Manufacturing expenses	24.40	37.70	53.62	71.16	87.55
Finished stock variance‡	—3.88	5.48	—4.85	—47.46	18.44
Royalty and selling and distribution expenses	51.37	45.28	62.84	67.06	86.29
Administrative expenses	3.34	1.88	3.19	4.56	4.12
Interest on loans	2.62	2.19	3.34	5.13	8.41
Depreciation	5.19	2.08	3.16	6.42	7.89
Development rebate	..	1.73	5.14	6.61	1.91
	200.00	209.04	289.35	318.37	429.06
Profit	14.07	27.15	37.25	43.40	26.20

* 1956 is for 15 months ending 31-3-1956.

† Material consumed includes general stores on an average 10%.

‡ This represents difference between opening and closing finished stocks.

Exhibit 2

Rajhans Pharmaceuticals

Summarised Balance sheet as on March 31

(Rupees in lakhs)

	1956	1957	1958	1959	1960
	Rs	Rs	Rs	Rs	Rs
<i>Fixed Assets :</i>					
Fixed assets at cost	40.75	44.83	64.92	106.03	117.14
Capital works in progress	..	0.50	11.42	1.06	7.16
Total	40.75	45.33	76.34	107.09	124.30
<i>Current Assets :</i>					
Investments	0.08	0.22	0.38	0.38	0.39
Inventories :					
General Stores	2.72	4.85	8.14	14.29	13.02
Raw Materials	29.01	36.21	43.10	67.24	81.87
Process Materials	7.71	12.49	21.55	18.48	27.78
Stock in trade	45.27	47.50	52.36	99.82	82.66
Total	84.79	101.27	125.53	200.21	205.72
Debtors	12.36	15.98	17.64	7.86	12.73
Advances and deposits	9.71	12.77	23.01	21.38	49.78
Cash and Bank balance	6.68	8.55	9.39	7.32	10.38
Total	113.54	138.57	175.57	236.77	278.61
Total Assets	154.29	183.90	251.91	343.86	402.91
<i>Capital and Liabilities :</i>					
Capital and reserves	60.56	74.23	97.41	109.69	116.94
Depreciation reserve	14.79	16.87	20.03	26.45	34.34
Loans secured	63.88	61.79	90.45	135.84	174.29
Current liabilities and provisions	15.06	31.01	44.02	71.88	77.34
Total	154.29	183.90	251.91	343.86	402.91

Exhibit 3

Rajhans Pharmaceuticals

Security made available for bank credit

Quarter ending	Inventories				Amount due on supplies to govern-ment insti-tutions	Total	Maximum Credit limit avail-able
	Raw mate-rial includ-ing other stores			stock in trade			
	(1)	(2)	(3)				
March 31, 1958	51.24	21.55	52.36	1,25.15	0.49	1,25.64	1,00.00
June 30	54.59	23.95	59.79	1,38.33	0.30	1,38.63	1,25.00
September 30	58.22	24.26	67.61	1,50.09	0.29	1,50.38	1,25.00
December 31	36.08	24.26	81.28	1,41.62	5.41	1,47.03	1,25.00
March 31, 1959	81.53	18.48	99.82	1,99.83	5.19	2,05.02	1,25.00
June 30	71.40	21.24	88.99	1,81.63	5.07	1,86.70	1,50.00
September 30	98.38	21.24	77.44	1,97.06	5.95	2,03.01	1,50.00
December 31	73.62	23.52	1,18.82	2,15.96	6.74	2,22.70	2,00.00
March 31, 1960	94.89	27.78	82.66	2,05.33	7.36	2,12.69	2,00.00

Bank credit could be availed of after providing a margin of 25% subject to maximum credit limit available.

9

Managing Cash Position

In planning the management of cash, the twin objectives of financial management—liquidity and profitability—are kept in mind. Though the cash balances must be adequate to meet obligations in right time, a large cash reserve may be wasteful since these funds may be better employed elsewhere. But the loss of liquidity also causes the problem of profitability for a firm. It may not only lose cash discounts but also fail to have better purchase terms from the suppliers of raw materials, stores and other goods.

At the present stage of the art of financial management the best that can be done is to compare cash balances of a company to its own historical records and to those of competitors in the industry. (Useful bases for comparison are the percentage of cash to sales, cash to current assets, and cash to current liabilities; (cash for the purpose of the calculation of these ratios covers not only cash in hand or at bank but also short-term investments in Government securities easily convertible into cash). The more the percentages for the company under study vary from those of the industry, the greater should be the attention paid to cash management.

It is difficult to judge whether or not a company is keeping too much cash on hand. Many financial executives are on the side of excessive liquidity as an insurance against unpredictable changes in cash. But if unforeseen events do not occur, it may be analogous to say that we pay too much for the fire insurance because we do not have fire.

The problem of cash management can be examined under four heads : (i) controlling level of cash; (ii) controlling inflow of cash; (iii) controlling outflow of cash; and (iv) optimal investment of surplus cash.

Controlling the level of cash. The objective of minimising the level of cash balance can be examined after paying attention to the following considerations : (a) predictable discrepancies between inflow and outflow of cash; (b) unpredictable discrepancies between inflow and outflow

of cash; (c) availability of other sources of funds; (d) sources of funds within business, i.e., internal margin of safety; and (e) relations with banks.

Predictable discrepancies. The basic tool for the financial executive to forecast the predictable discrepancies between cash inflows and outflows is the cash budget, discussed in Chapter 8. Properly prepared, the cash budget reveals the timing and size of net cash flows as well as the periods during which excess cash may be available for temporary investment. In small companies, the preparation of cash budget is a relatively minor job, but in large companies this job is almost a full-time one and it is common practice to delegate this responsibility to the controller or the treasurer. Companies revise their 6-12 month short-range cash forecast every month although some make formal revisions of year-long forecast only quarterly. Informal revisions of cash forecasts are made between formal revisions as circumstances may require. Some companies develop standard forms to be used in the preparation of short-range forecasts in order to ensure uniformity. These standard forms may be supplemented with written instructions that explain how the forecast is to be prepared and what items are to be included. One of the main problems faced by companies in short-range cash forecasting is that financial officers are largely dependent on other people for their basic information. This information may be inaccurate due to the nature of the business making forecasting unreliable or due to the people responsible for supplying information failing to do a careful job.

The short-range forecast is generally regarded as a basic financial working tool to determine operating cash requirements, to anticipate the need for short-term financing, and to manage investments. In addition to these three common uses, companies find the short-range forecast of great help in optimising bank relationships by indicating the highest and the lowest of the cash and the timing of its flow in and out of the company. These short-range forecasts also help in planning reduction of long-term debt, guiding dividend policy, co-ordinating divisional financial needs, taking advantage of cash discounts, planning forward purchasing, etc.

The short-range may mean different periods of time to different companies. A cash forecast period of one year is used most frequently, although short-range forecast periods may range from one week to two years, depending on the characteristics of the business and the purpose for which the forecast is used. For example, businesses that are subject to wide unpredictable fluctuations in sales and cost of raw materials generally tend to employ forecast periods of not over three months. Even in such short forecast periods frequent revisions may become necessary. On the other hand, companies with stable business use a longer forecast period and still obtain the desired degree of accuracy. In such cases, one year is the most common

forecast period. The other consideration that influences the length of the forecast period is the purpose for which the forecast is prepared. For example, merely to obtain the picture of cash position during the year, together with when cash peaks and lows will occur, the annual forecast, subdivided by months, generally provides the desired information. Many companies make two or sometimes more short-range forecasts of varying lengths to meet their different needs.

Unpredictable discrepancies. An adequate balance of cash may be considered desirable to take care of certain business hazards like strikes, riots, floods, short-term recession, etc. These events can either interrupt cash or cause a sudden outflow. Hence, a certain portion of cash balance is to be kept to meet such unpredictable discrepancies and this balance is in the nature of insurance. The particular cost of this insurance is the income which a company could have earned on these idle cash balances.

Availability of other sources of funds. A company may have external sources to obtain funds on short notice. The better the credit standing, the smaller the amount of cash that can be maintained. There may also be sources of funds within the business that may suffice to meet unexpected or unusually large drains of cash. A company may sell redundant machinery and equipment, assign its accounts receivables or other assets which are converted into cash. The existence of such assets or sources is the internal margin of safety.

Relations with banks. The level of cash balance is determined to a great extent by relationship of a company with its banks. In this connection factors of major importance are the financial condition of the bank, its location, the services it offers and the managerial ability of its chief officers. The importance of bank relations in cash management depends to a large extent on the number of banks used by a company and the types of banking services it requires. In fact, corporate treasurers are concerned with the following basic problems: the cash credit arrangements, discounting and collecting the bills, control of balances, fair compensation of banks for their services, appraisal of banks in terms of the services rendered by them.

Controlling inflow of cash. Adequate control of cash inflow is an important problem for the financial executive who has to devise action not only to prevent fraudulent diversion of cash receipts but also to speed up collection of cash. The installing of the system of internal check can minimise the possibility of defalcation of cash, i.e., the job of handling cash receipts has to be broken up into several stages, each handled by a different employee. Speedier collection of cash can be possible by adopting the following procedures which have been found quite effective in the United States:

Lock-box system. This is a technique for speeding the collection of payments from debtors. It involves the setting up of deposit accounts with one or more banks, geographically so located that remittances from customers will take not more than one day in transit. Customers mail remittances to a lock-box in the post office that serves the company's regional bank. The bank collects from the box several times a day. It deposits the cheques, clears them locally and credits the company for the amount collected. Thereafter, depending upon the arrangements made with each regional lock-box bank, funds in excess of balances maintained to cover costs are transferred automatically to company headquarters or drawn by the corporate treasurer at his discretion.

This system of lock-box has been found most useful by companies to reduce the 'float' (the time of 7-10 days otherwise taken to collect the remittance from customers) by five days. The savings of the system can be realised by the following illustration: We assume that a company has annual sales amounting to Rs 360 lakhs. Its average daily collections amount to about Rs 1 lakh and a reduction of 'float' by five days would release a gross amount of Rs 5 lakhs for use elsewhere in the business. The company may be required to maintain a deposit with the bank to pay for the cost of its services. This balance is assumed at Rs 2 lakhs. Thus the net amount of funds freed would be Rs 3 lakhs. If net cost of freeing these funds is Rs 3,000, it amounts to only 1% of the freed funds. It will be difficult to raise Rs 3 lakhs at this low annual cost.

There are other benefits from this system in addition to the reduction of float. As cheques are collected faster, the company can come to know of dishonoured cheques and weak credit situations sooner. A considerable amount of cheque handling procedures of the company is transferred to the bank which, because of the size of operations, may be able to handle the task more efficiently than the company. The company achieves better control over incoming cash and thereby considerably reduces the chances of frauds. Other intangible benefits can be obtained by the company through the use of regional bank for credit information and as a possible source of loans. However, a few companies have encountered customer resistance to lock-box system. Some of their customers insist on sending cheques directly to company headquarters in spite of company's insistence that remittances should be forwarded to the regional lock-box. The customers have been traditionally used to 7-10 days' float (previously involved in making a remittance) and often drew and mailed cheques against funds that would not be in their bank for one week. The use of the lock-box meant that they had to have bank balances to cover such remittances in the bank not later than one day after the cheque had been mailed.

Collections through regional or branch office. Under this system the regional or branch offices of the company collect and deposit remittances in local banks and from the local banks they are transferred to a few regional banks or to the company's head office bank. Fast movement of funds is commonly effected by means of wire transfer or telex. Compensating balances to cover cost of service are usually maintained with the local or regional banks. On the basis of their daily report of the collected funds, the company treasurer can use excess by wire or disburse them locally according to need. Some companies prefer to have their banks automatically transfer daily receipts by wire to the company's head office bank so that they are available for use within a day of their local collection. This system is found useful in speeding up collection for companies with a large number of distribution centres throughout the country and particularly when collections involve large numbers of small payments.

Most of the big companies like to have close control of bank balances, including those of divisions and subsidiaries as an integral part of good management programme. A substantial amount of cash can be saved through improved control through divisions of bank branch balances. Local managements are often less conscious of the benefits of good cash management than the head office finance department and tend to allow bank balances to become too large before remitting the surplus to headquarters. Funds sometimes lie idle in local balances simply because the local treasurer or controller likes to keep a cash cushion even though it is not needed and head office will supply funds whenever they are required. When local balances are carefully controlled, the excess cash funds of one division or unit of the company can be invested to maximise the profitability of the company by several devices such as daily cash report, imprest funds, automatic transfer of bank balances and control of intra-company transfers.

Daily cash reports are made informally, often by telegram or telex. On the basis of information contained in such reports, the company treasurer is able to transfer funds among various banks as required. Imprest funds are established with a fixed minimum balance, based on the average of disbursements by each division for a specified period—usually a week or a month. Divisions have to submit vouchers in order to have their local accounts replenished. Moreover, these balances are held at a minimum consistent with operating needs. Under automatic transfer a pre-determined amount in accordance with working requirement may be fixed and excess is automatically transferred by the bank to the company's head office bank. In case of deficiencies in balances, funds are transferred from central to divisional accounts to build balances back to the required levels.

Transfer of funds between divisions or subsidiaries of a company can result in needless float if not properly administered. Such inter-divisional

transfers can be made by a book-keeping entry between the divisional balances at the company's head office, thus releasing cash for other uses.

Controlling outflow of cash. The financial executive generally stresses the value of maintaining careful controls over the timing of payments so as to ensure that bills are paid only as they become due. He knows from experience the approximate amount of the incoming float in its bank account from day to day and makes a conscious effort to use it to offset a balance of float involved in outgoing payments. The effect is to commit funds for payment that are in incoming float as against to commit available bank funds to cover payments. He may attempt to arrange with the suppliers to make the due dates for large bills coincide as closely as possible with dates of peak inflow to avoid excessive pile-up or drain on cash.

Centralised payment to creditors is preferred by many companies as they have not to maintain large working balances with their subsidiaries and divisions. Companies pay bills from their head office except for local expenses like rent, light, power, water and other petty cash accounts. Through this device, funds which would otherwise be idle at the division level can be put to use.

Investing surplus cash. There are usually no formal written instructions for investing surplus cash. Companies prefer to rely on informal but well understood policies, the discretion of the responsible financial executive, and the limitations imposed by the cash needs of the business. For the most part, investments are for a period not exceeding one year and very often are restricted to maturities of no more than three to six months.

Cash surplus may be temporary or it may exist more or less on a permanent basis. Temporary cash surplus is composed of funds that are available for investment on a short-term basis as they are required to meet regular obligations such as taxes, dividends and current liabilities. It may also include cash build-ups by companies whose business is seasonal.

Cash surplus may be maintained more or less permanently as a hedge against unforeseen heavy expenses or for flexibility in the event that an attractive opportunity for expansion or acquisition should suddenly present itself. Cash may also be accumulated over several years as a measure of a long-range plan.

For determining investible amount, the company has to establish *minimum cash balances* to support operations on the basis of past experience and short-range cash forecast. Such minimum balances are fixed keeping in mind the consideration to compensate the bank for various services. Business firms with relatively static cash balances may keep amounts in-

vested that they know from experience approximate to their average cash surplus. They may wish to keep most excess cash working and are not much interested in maximising their yield from cash investments. Often a policy of not investing less than a fixed sum at a time is evolved in addition to minimum periods for investment to invest cash surplus. This minimum period may be fixed as "not less than 91 days". Companies that set minimum limits either on amount or period follow a conservative investment policy, and prefer to let any surplus that may be available for less than their minimum investment amount or period build up to enhance their bank balances temporarily.

The principal criteria governing the selection of investment for surplus cash are : security, liquidity, yield and maturity. In order to ensure security, companies may restrict themselves to that type of investment which remains relatively stable in price. This problem of managing large portfolio investment has to be approached with the degree of interest and sophistication that banks normally apply to their investments. In contrast, smaller companies, with relatively limited amounts of surplus to invest, are not much concerned with maximising yield. Such companies stick close to short-term Government securities. Often corporate managements take the position that they are not in the banking business and are satisfied to invest in short-term treasury bills. On the other hand, some companies feel that they must attempt to maximise yield through more aggressive investment practices.

The short-term portfolio management in larger companies is usually left to trained and experienced staff members of the finance department. They have to keep in mind both the range of securities available and the degree of trading involved. The investment policies of individual firms are influenced by the nature of cash flow in the company, the reliability of projections in cash budget, and the basic attitudes of corporate management. If a company's cash flows are highly volatile, its management may be more concerned with liquidity than with yield. Some managements feel that the company's primary function is to produce and distribute goods and services and that they should not venture into the investment field. The diversion of greater attention to the projection of cash budget may help in harmonising maturities of investment and cash requirements. It may result in the accomplishment of the objective of maximum yield.

The firm has to take advantage of yield difference among maturities as well as various types of securities. For example, a company may break its portfolio into three major classifications according to the availability of funds. The first classification is primary reserve which provides funds for unforeseen disbursements on short notice and to meet unexpected vari-

ations in operating cash requirements. Securities in this reserve are regarded as equivalent of cash. The second major classification includes securities with maturity dates roughly coinciding with known specific cash requirements like tax payments, dividends, capital expenditure. The third classification of securities is a general reserve of funds not required to meet any specific payment and it consists of securities with longer maturities and more favourable yields.

Matrix approach to investment portfolio. The implication of variables relative to the return on investment like safety, liquidity, yield and maturity can be evaluated by employing the matrix approach as illustrated below.

Matrix of Alternative Portfolio

Pro- gramme	% Composition of Portfolios			Yields	Weighted Yield Factors	Weighted returns on portfolio	
	TB	FD	OI		TB	FD	OI
A	70	20	10		2.10	.70	.45
B	$\left\{ \begin{array}{ccc} 60 & 30 & 10 \\ 50 & 30 & 20 \\ 50 & 40 & 10 \end{array} \right\}$			$\times \left\{ \begin{array}{ll} \text{TB} & 3.0\% \\ \text{FD} & 3.5\% \\ \text{OI} & 4.5\% \end{array} \right\}$	$= \left\{ \begin{array}{ccc} 1.80 & 1.05 & .45 \\ 1.50 & 1.05 & .90 \\ 1.50 & 1.40 & .45 \end{array} \right\}$	$=$	
C							3.45
D							3.35

TB=Treasury Bills. FD=Fixed Deposit in Commercial Banks.
OI=Other Investment opportunities.

In this matrix four programmes are illustrated, ranging from conservative to liberal—the range of return varying from 3.25% to 3.45%. After reviewing these end results in the light of portfolios' compositions the financial executive will be in a better position to judge the optimum mix to achieve stipulated objectives. Programme C gives the highest yield. It may be selected, provided considerations other than yield are in accordance with the overall investment policy of the firm.

Responsibility for investment of surplus cash is vested in the corporate treasurer though in larger companies the responsibility for carrying out day-to-day investment operations is often delegated to subordinates. Often the authority of financial executives to invest cash surplus is limited only by informed restrictions on the type of security and/or the length of maturity. Within these limitations most companies permit their treasurers to use their own discretion. Some companies may formalise restrictions on the investment of cash surplus *via* resolutions of Board of Directors.

Treasurers rarely require advance authorisation to purchase or sell securities. The main exception may be in the case of unusual or unexpected buying opportunities when top management's approval may be

sought first. A feeling is often expressed that whoever is responsible for investing a company's surplus funds should be given responsibility that corresponds to his knowledge of the securities market.

Most financial executives make regular reports on their investment portfolio which vary from informal notices of the total funds invested to detailed break-down that show each type of security, its cost to the company, its value at maturity date, and its before-tax yield. This report may also indicate the over-all annual return on invested surplus cash together with figures for the previous year for comparison purposes.

The choice of securities for short-term investment of surplus cash in Indian companies is limited to Government of India treasury bills and fixed deposits with commercial banks. Treasury bills are sold at a discount (the present rate is nearly 3%) and redeemed at par, the difference being the return offered to investors. Ordinarily, companies investing in short-term treasury obligations intend to hold them until maturity, and thus risk no loss or impairment of capital while being assured of a reasonable return on the investment. Such obligations can be sold at any time during their life for more than the company originally paid for them because of the great demand for securities close to maturity. As regards fixed deposits with commercial banks, interest rate varies with the duration of deposit. Due to ill-developed money market in India there are restricted opportunities for investing funds on short-term basis. The cash credit arrangement which most of our companies have got with the bank also reduces the magnitude of the problem of cash management. With the collection of funds from the company's debtors, the bank adjusts those receipts against the amount of outstanding loan. A good number of companies in India face the problem of cash deficit rather than of cash surplus on account of their under-capitalised financial structure.

Cash management models. Several types of mathematical models designed to help determine optimal cash balances have been developed lately. These models are interesting and are beginning to become practical. Inventory-type models have been constructed to aid the financial manager in determining his firm's optimum cash balances. William J. Baumol ("The Transactions Demand for Cash: An Inventory Theoretic Approach", *Quarterly Journal of Economics*, November 1952) applies the Economic Order Quantity model (discussed in chapter 12 'Management of Inventory') to the cash management problem. He recognised the fundamental similarities of inventories and cash from a financial viewpoint. A few other models have also been developed. These decision models should not be applied blindly. There are difficulties in estimating parameters and probabilities. Often information available to the financial manager is not directly incorporated into the model. Thus a model, un-

aware of relevant information, might provide completely erroneous advice. Cash management models should be used as a guide to intelligent decision making, tempered with the manager's own judgment.

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10

Management of Working Capital

The problem of managing working capital has got a separate entity, as against different decision-making issues concerning current assets individually. Working capital has to be regarded as one of the conditioning factors in the long-run operations of a firm which is often inclined to treat it as an issue of short-run analysis and decision-making. The skills for working capital management are somewhat unique, though the goals are the same as in managing current assets individually, viz., to make an efficient use of funds for minimising the risk of loss to attain profit objectives.

Working capital management involves deciding upon the amount and composition of current assets and how to finance these assets. These decisions involve tradeoffs between risk and profitability. The greater the relative proportion of liquid assets, the less the risk of running out of cash, all other things being equal. However, profitability will also be less. Resolution of the tradeoff between risk and profitability with respect to these decisions depends upon the risk preferences of management. The lower the proportion of liquid assets to total assets, the greater the firm's return on total investment. This strategy will result in a low level of working capital. Offsetting the profitability of this strategy is the risk to the firm, i.e., probability of technical insolvency.

The problem of working capital management can be examined under two heads: internal financing, and external financing. In the following discussion, we would be concerned with the internal financing aspect which deals with determining the size of working capital needs in particular business situations and seeking to achieve certain long-run operating goals. Instead of telling financial executives how much working capital is required in specific situations, our purpose is to acquaint them with tools and skills that may make them more proficient in making quantitative decisions about working capital needs.

Long-run view of working capital. Working capital is often classified as gross working capital, and net working capital. The former refers to the total of all the current assets and the latter is the difference between total current assets and total current liabilities. These are acceptable terms. From the management view-point, gross working capital deals with the problems of managing individual current assets in the day-to-day operations. But for having a long-run view of working capital we have to concentrate on the net value of current assets, i.e., the operation of current assets which is constant in short-run analysis and decision-making but variable and manageable in long-run operations.

The concept of net working capital helps the management to look for permanent sources for its financing since working capital under this approach does not increase with increases in short-term borrowings. On the other hand, it is argued that management is more concerned with the total current assets as they constitute the total funds available for operating periods than with the sources from where the funds come. Profits are earned with the help of assets which are partly fixed and partly current. Similarity, to a certain degree, can be observed in fixed and current assets so far as both are partly financed by borrowing and yield profit over and above the interest cost. Management has to pay attention to the total amount of current assets and their profit-earning capacity so that it is higher than cost of borrowing.

The concept of net working capital, it is argued, had relevance when the form of business organisation was on the basis of single entrepreneurship or partnership and when there was a close contact involved between ownership of capital and its management. But under joint stock form of business organisation the ownership of current or fixed assets is not so relevant.

Measuring working capital ○✓

Working capital balances are measured from the financial data of corporate balance-sheet. Usually the working capital balance of a going concern has a positive value but often uses of working capital exceed the sources of working capital in certain periods. In efficiently managed companies such deficits are soon offset by gains in following periods. A study of the causes of changes that take place in the balances from time to time is necessary. This involves the basic approach to working capital analysis. Changes in balances can be measured in rupee amounts and also in percentages by comparing current assets, current liabilities and working capital over a given period.

○ **Ratio analysis.** The ratio analysis of working capital can be used by management as a means of checking upon the efficiency with which

working capital is being used in the enterprise. The most important ratios for working capital management are: (1) turn-over of working capital (net sales divided by average net working capital) for a certain period, say, one year; (2) current ratio (current assets divided by current liabilities); (3) current debt to tangible net worth (current liabilities divided by tangible net worth).

Ratio analysis takes two forms: (i) behaviour of ratios over a period of years to determine trend; (ii) comparing ratios for one concern with those of the other concerns in the same line of business. In making such comparisons allowance must be made for differences in the character of enterprise and for special accounting practices and policies pursued by each undertaking. Dun & Bradstreet compute minimum working capital ratios regularly for the preceding five years for different groups of manufacturers, wholesalers and retailers in the United States. These ratios, compiled primarily for credit analysis, provide a standard against which a business can compare its own ratios. In India, recently, the Bombay Stock Exchange Official Directory provides periodical analytical studies of various companies classified in five volumes.

The turn-over of net working capital ratio measures the rate of working capital utilisation. A company showing a turnover in excess of industry standards may be in need of additional net working capital to be supplied by owners through re-invested earnings or the sale of additional shares. A concern with a lower than average ratio may have an excess of investment in net working capital. This ratio shows how many times working capital turns over in trading transactions. An increasing ratio indicates that working capital is more active than it has been in the past, i.e., working capital is being worked harder, used more intensively than in the past. Up to a certain level, this may be favourable condition indicating efficient use of the shareholders' capital but above a certain figure the company should become concerned. A sudden reversal like decreased sales or collections from debtors may create an insolvency threat. A decreasing ratio indicates that the company is using working capital less economically. While the decreasing ratio usually indicates relative inefficiency in the use of capital from the profit viewpoint, it may also show that management is protecting the capital for the business and its shareholders. Every business has to work out its own normal level of variation and its own upper and lower limits of the ratio that will produce a reasonable combination of profitability and safety in the management of working capital balances.

The *current ratio* measures the relative ability of a company to pay its short-term debts. The current ratio may be used to reveal how well a firm could meet a sudden demand to pay off all its short-term creditors. The short-term assets, according to the reasoning of this ratio, must be

large enough to meet the demands with some margin in case some of the assets are not liquid. But this study of liquidity is not much meaningful because for the great majority of growing concerns, an early death is not a significant probability. In other words, sudden demand to pay-off is not a contingency towards which a financial executive's efforts should be devoted. He has to measure the flow pattern and this information is not given by the yearly balance sheets which are not supposed to record all movements of funds. To know the true liquidity of the growing concern, we must know the potential flow of funds.

The *ratio of current liabilities to tangible net worth* shows how much capital used in the enterprise has been provided by the short-term creditors and how much by the owners. The funds permanently invested by the owners serve as a cushion for credit temporarily extended to the business. Accordingly, the higher the ratio, the greater the risk of short-term creditors. For knowing limitations of ratio analysis, one should refer to Chapter 5 dealing with Ratio Analysis.

Funds flow analysis of working capital. Funds flow analysis is an effective management tool to study how funds have been procured

XYZ Company
Comparative Balance Sheets

	As on 31.12.67	As on 31.12.68	Uses of Funds	Sources of Funds
	Rs	Rs	Rs	Rs
Assets :				
Cash	10,000	25,000	15,000	
Debtors	30,000	45,000	15,000	
Inventories	40,000	70,000	30,000	
Plant & Equipment (net)	1,00,000	90,000		10,000
Total	1,80,000	2,30,000		
Liabilities :				
Creditors	30,000	50,000		20,000
Short-term loans	20,000	30,000		10,000
Net worth :				
Capital	80,000	90,000		10,000
Reserves & Surplus	50,000	60,000		10,000
Total	1,80,000	2,30,000	60,000	60,000

XYZ Company
Statement of Variation of Working Capital

<i>Increase in Working Capital</i>	Rs
Cash	15,000
Debtors	15,000
Inventories	30,000
	<hr/> 60,000 <hr/>
 <i>Sources of Working Capital</i>	
Increase in Creditors	20,000
Increase in Short-term Borrowings	10,000
Increase in Capital	10,000
Increase in Retained Earnings	10,000
Decrease in Plant & Equipment (Depreciation)	10,000
	<hr/> 60,000 <hr/>

for the business and how they have been employed. The statement of variations in working capital is based fundamentally on the same approach used for the preparation of funds flow statement. This technique helps to analyse changes in working capital components between two dates. The comparison of current assets and current liabilities, as shown in the balance sheet at the beginning and end of a specific period, shows changes in each type of current assets, as well as the sources from which working capital has been obtained. The above simple illustration makes this point clear.

A more thorough analysis of changes in working capital can be made by incorporating relevant items from the income statement as well (see Chapter 4 dealing with Funds Flow Analysis).

Working capital budget. Efficient management of working capital involves careful measurement of future requirements and the formulation of plans for meeting them. The working capital budget is an important phase of an over-all financial budgeting. This budget should be distinguished from a cash budget that is designed to measure all the financial requirements of a business including funds for the fixed assets, repayment of long-term loans and similar items. On the other hand, the working capital budget measures permanent and variable working capital requirements and assures that they are duly provided for. The objective of working capital budget is to secure an effective utilisation of the investment. Such utilisation may be studied by the rate of turnover as measured against sales or cost of goods sold. This is the key to the method.

Scatter charts are used to study the behaviour of working capital in relation to volume of sales or cost of goods sold. It is often found desirable to refine the relationship and establish separate standard for each element, particularly cash, debtors and inventory. This technique can then provide the necessary information for any volume of business.

Kinds of working capital. Working capital can be studied under two heads: (a) fixed, regular or permanent; and (b) variable, seasonal, or special. A part of the investment in current assets is as permanent as the investment in fixed assets. It covers the irreducible minimum amount necessary for maintaining the circulation of the current assets. Working capital invested in starting the circulation of the current assets and for keeping it moving is permanently locked up. For instance, every industrial enterprise has to maintain a minimum stock of raw materials, works-in-progress, finished products, loose tools and spare parts. It always requires money for the payment of wages and salaries throughout the year.

The need for working capital varies in many industries with the seasonal changes. The additional working capital may also be required on account of certain abnormal conditions. For example, the anticipated rise in the price level may induce the industrialists to increase their stock position in raw materials as well as finished products. More money may be required to tide over the dull market conditions because finished goods remain in stock on account of crash in the prices. Additional doses of working capital may be administered to face cut-throat competition or other contingencies like strikes and lockouts. The organisation of special campaigns for increasing sales through advertisement or other sale promotion activities, for conducting research and experiments or execution of special orders of the Government may have to be financed by additional working capital.

The distinction between regular and variable working capital is important in arranging the finance for an enterprise. It is undesirable to bring regular working capital into business on a short-term basis because a creditor can seriously handicap the business by refusing to continue lending.

Regular working capital permanently financed. At the time of drafting the initial financial plan, the minimum working capital requirements should be anticipated and adequate provision should be made on a long-term basis. Besides ploughing back of profits, shares and debentures can be issued to raise the necessary funds.

The issue of shares is likely to prove more advantageous than the sale of debentures because in the former case the management is relieved of the anxiety to return the amount on some fixed maturity date. More-

over, the inclusion of shares in the financial plan introduces an element of flexibility and no charge is created against the assets of the firm. In addition, the company is under no obligation to pay a fixed rate of interest on the capital raised by the issue of shares. But the permanent financing of working capital through the issue of shares puts a certain limitation on its part to trade on equity.

Debentures are also a source of permanent financing of working capital. Being a fixed burden on the corporate earnings, debentures are issued only when the working capital requirements are permanent and not seasonal. Debentures assist the issuing corporation to offer a higher rate of return to the equity holders. Moreover, the redemption of regular instalments of debenture-issue entails a constant financial discipline for the management.

The fixed working capital is also financed by investing capital and/or revenue reserves in the concern. A newly started corporation cannot rely on this source but enterprises which have conducted the business over a number of years usually create reserves by conserving their profits or capital gains. This is the best source of providing finance for the regular working capital with the limitation that it is not available in the initial stages of a firm's career.

Financing variable working capital. The sources from which seasonal or temporary needs of a company are financed are usually thought of in terms of various agencies which supply credit. Sometimes a business enterprise arranges finance for these needs from its internal operations. The degree to which external sources can provide variable working capital is determined by a number of factors like the stability in corporate earnings, the free and mobile assets which may be offered as security, capital gearing in the financial plan, and the amount of cash available internally.

Many business firms prefer to raise seasonal and cyclical working capital also from the more permanent sources such as retained earnings or the sale of shares or long-term debt. In this way, they avoid incurring short-term liabilities that may prove embarrassing should working capital needs be larger or longer-lasting than anticipated. Part of variable working capital is obtained from trade creditors. Working capital requirement may be reduced by offering favourable credit terms to customers. For instance, by allowing a cash discount for prompt payment the volume of outstanding debtors can be reduced substantially. However, a cash discount may be a costly way to finance since an offer of 2% cash discount for payment within 10 days (while the term of credit is 30 days) is equivalent to borrowing money at the rate approximately 36% per annum because 2% is for the use of funds for a period of only 20 days given. If

debtors are paying after 60 days then the cost of this cash discount should be calculated on the basis of uses of funds for a period of 50 days, i.e., 14.4% $\left(\frac{360}{50} \times 2\right)$. Often cash discounts are allowed as a matter of custom and also for prompt payment in order to reduce credit costs and risks. But efficient credit and collection practices can accomplish the same result.

The most widely used source of temporary working capital is the bank loan taken against hypothecation or pledge of inventory or mortgage of fixed assets. Though loans against hypothecation of inventory may be called as short-term, but for all practical purposes they are permanent.

Determinants of working capital

A company, as a general policy, wants to hold in balance as small a quantity of working capital as possible so long as undue solvency risks are not imposed on it. This is a logical approach indicating that working capital is a means to an end and not an end in itself. Quantitative amounts of working capital can hardly be set for individual firms. The corporate management has to consider the various factors in making decision regarding balances. An appraisal of these would provide guidance to management in estimating prospective needs.

Working capital is constantly affected by the criss-crossing economic currents flowing about the business. The nature of a firm's activities, the economic health of the country, the availability of materials, the ease or tightness of the money market are all part of these shifting forces. It is difficult to rank them because the influence of individual factors rises and declines over a period as the corporate internal policies and the environments in which it operates change. However, the following factors are pertinent for having an over-all view of the forces affecting working capital needs.

Nature of business. A company's working capital requirements are basically related to the kinds of business it conducts. Public utilities have the lowest requirements for current assets partly because of the cash nature of their business and partly of their selling a service instead of a commodity and there is no need of maintaining big inventories. On the contrary, trading concerns have to invest proportionately high amounts in current assets as they have to carry stock-in-trade, accounts receivable and liquid cash. The industrial units also require a large amount of working capital though it varies from industry to industry because of the lack of uniformity in the asset structure of various industries. Generally speaking, trading and financial firms require relatively large amounts of working capital, public utilities comparatively small amounts, whereas manufacturing

concerns stand between these two extremes, their needs depending upon the character of industry of which they are a part.

Production policies. Strong seasonal movements have special working capital problems in controlling the internal financial swings that may take place. Depending upon the kind of items manufactured, a company is able to offset the effect of seasonal fluctuations upon working capital by adjusting its production schedules. The choice rests between varying output in order to adjust inventories to seasonal requirements and maintaining a steady rate of production (level of production) and permitting stocks of inventories to build up during off-season periods. In the former instance, inventories are kept at minimum levels but the production manager has to shoulder the responsibility of constantly adjusting his working staff; in the latter, the uniform manufacturing rate minimises fluctuations of production schedules but enlarged inventory creates special risks and costs. It will thus be obvious that a level production plan would involve a higher investment in working capital.

Manufacturing process. If the manufacturing process in an industry entails a longer period because of its complex character, more working capital is required to finance that process. The longer it takes to make an approach and the greater its cost, the larger the inventory tied up in its manufacture and, therefore, higher the amount of working capital. Often, companies making heavy machinery and equipment minimise their investment in inventory or working capital by requiring advance payment from customers as work proceeds on their orders.

Turn-over of circulating capital. The speed with which the circulating capital completes its round, i.e., conversion of cash into inventory of raw material and stores, inventory of raw material into inventory of finished goods, inventory of finished goods into book debts or accounts receivables, and book debts into cash account, plays an important and decisive role in judging the adequacy of working capital.

Growth and expansion of business. As a company grows, it is logical to expect that larger amount of working capital will be required though it is difficult to draw up firm rules for the relationship between the growth in the volume of a company's business and the growth of its working capital. The composition of working capital in a going company also shifts with economic circumstances and corporate practices. Growth industries require more working capital than those that are static, other things being equal.

Business cycle fluctuations. Requirements of working capital of a company vary with the business variation. At a time when the price level comes up and boom conditions prevail, the psychology of the management is to pile up a big stock of raw material and other goods likely to be used

in the business operations as there is an expectation to take advantage of the lower prices. The expansion of business units caused by the inflationary conditions creates demand for more and more capital. Usually the working capital under such conditions increases. The other phase of business cycle, i.e., depression, involves the locking up of a big amount in the working capital as the inventories remain unsold and book debts uncollected. If there is a contraction in the volume of business done by an enterprise, it may result in increasing the cash position because of reduction in inventory and receivables that usually accompanies a decline in sales and curtailment of capital expenditures. When new fixed assets are not being acquired, as is common in depressions, the depreciation provision contributes to the growth of cash, provided the operating profit is sufficient to cover it. Thus, a business during depression may give a misleading appearance of financial strength except where substantial operating losses are incurred. With recovery, the cash position may decline and a shortage of working capital may develop.

Terms of purchase and sale. The place given to credit by a company in its dealings with creditors and debtors affects considerably the amount of working capital. A business unit, making purchases on credit basis and selling its finished products on cash basis will require lower amount of working capital. On the contrary, a concern having no credit facilities and at the same time forced to grant credit to its customers may find itself in a tight position. Discretion of management in setting credit terms is affected by prevailing trade practices as well as by changing economic conditions. If competition is keen, there is more pressure to stock varied lines of inventory to satisfy customers' demands and to grant more generous credit terms.

Dividend policy. A desire to maintain an established dividend policy may affect working capital. Often changes in working capital bring about an adjustment of dividend policy. The relationship between dividend policy and working capital is well established and very few companies declare a dividend without giving due consideration to its effects on cash and their needs for cash. A shortage of working capital often acts as a powerful reason for reducing or skipping a cash dividend. On the other hand, a strong position may justify continuing dividend payment, at least for a while, even though earnings are insufficient to cover the payment. Sometimes the management has to resolve a dilemma of reducing or skipping the dividend by the adoption of stock dividend, i.e., issue of bonus shares. Stock dividends become a popular means of satisfying dividend preference of shareholders while retaining the cash to finance growth.

Other factors. In addition, absence of co-ordination in production and distribution policies in a company results in a high demand for working capital. *Secondly*, the absence of specialisation in the distribution of products

may enhance the need of working capital for a concern as it will have to maintain an elaborate organisation of its own for marketing goods. *Thirdly*, if the means of transport and communication in a country like India are not well-developed, the industries may face a great demand for working capital in order to maintain big inventory of raw materials and other accessories. *Fourthly*, the import policy of the government may also affect the requirement of working capital for the companies as they have to arrange for funds for importing the goods at specified times. *Lastly*, the hazards and contingencies inherent in a particular type of business decide the magnitude of working capital in terms of keeping liquid resources.

Cost considerations of working capital. The financial executive has to keep a watch on the balance of working capital and the cost differentials of various alternatives to maintain it at a certain level. All sources and uses of money are not under his control, although all of them influence his job. Some of the flows are not controlled by anyone in the firm. They are simply facts of life, imposed by the outside world. Other flows are governed by, say, the sales manager, production manager or the personnel department. Some flows are the result of policies made at infrequent intervals and at upper level, perhaps by the Board of Directors. For instance, dividends are typically fixed by a long-run policy. Within these constraints, the financial executive has to balance various costs in an effort to keep the total cost as low as possible. These costs, requiring proper balancing on his part, may consist of: (a) the cost of close synchronisation of expenditures and receipts on income account, (b) the cost of having trade credit, (c) the cost of extending liberal credit terms to debtors, (d) the cost of letting or allowing cash to remain idle, (e) the cost of managing cash in off-periods, and (f) the cost of borrowing money from lenders or lending institutions.

Planning working capital

For all practical purposes the planning of sources of working capital can be confined to: (a) net gains from operations, (b) sale of fixed assets, (c) raising long-term debt, (d) additional issue of shares, and (e) retirement of current liabilities below book value.

Net profits constitute a potential permanent source of working capital funds from current operations since funds accruing to the depreciation are usually expected to be reinvested at some later date in replacements and additions of fixed assets. This is the most desirable source of working capital as it does not burden the business with external obligations. The main limitations of this source of capital are that it cannot usually produce much funds on short notices and also, unless it is closely managed, it may be frittered away in dividends.

All other sources of funds, besides net gains from operations, are irregular and for the most part are temporary. Sale of fixed assets is an occasional and irregular source and management cannot usually depend on fixed assets for working capital even to meet emergency needs because of the unfavourable effect on operations and profits. Capital borrowing is a source of working capital that can be planned with certainty but these funds eventually have to be returned to the creditors and the only source of funds for repayment is working capital. Funds raised from the sale of shares may be a potential permanent source of working capital funds in addition to net profit. These share issues may not add to interest burdens like long-term debt but they exert a potential demand for dividends and the use of this source may mean sharing the ownership in the business with new investors.

Retiring current liabilities below book values is not the normal procedure in business except in a few cases where creditors may agree to accept a payment less than the face amount of debt. Cash discounts on purchases will, however, be accounted in the operating statement and increase working capital through book profits. But retiring income-tax liability below the account is one item that can be mentioned here which results in increase of net working capital. For instance, the provision for tax reserves of a certain amount which remains with the business until the time comes for tax payment. If the amount of reserve for this purpose is over-estimated and the actual payment of tax is less, the effect is to free the difference for the working capital.

Deferred payment of taxes can only be a temporary source of working capital. Taxes are not paid over day-to-day but the estimated liability for them is indicated in the balance sheet. There is a certain period of time during which business can hold and may use these funds. But the quarterly advance payments of tax have diminished the significance of income-tax accruals as a source of working capital.

Is depreciation a source of working capital? When depreciation deductions from earnings are not balanced by new investment in fixed assets, there may be an increase in working capital provided such funds are not used to pay-off loans or to distribute dividends. Provision for depreciation can provide funds only if gross profit is sufficient to cover the depreciation charge. Essentially, sales generate working capital so long as cash costs and expenses are less than sales income.

Financing working capital: A new approach ✓

Attention may be drawn to a hedging approach to finance current assets, i.e., each asset would be offset with a financing instrument of the same approximate maturity with a hedging approach, short-term or seasonal

variations in current assets—less trade creditors and provisions—would be financed with short-term debt. On the other hand, hard-core or permanent component of current assets would be financed with long-term funds—long-term debt and/or equity. The distinction between variable and permanent components of current assets may be difficult to make in practice but it is neither illusory nor unimportant. Short-term financing for long-term needs is dangerous. A profitable firm may not be in a position to meet its cash obligations if funds borrowed on a short-term basis have become tied up in permanent assets (permanent current assets and fixed assets).

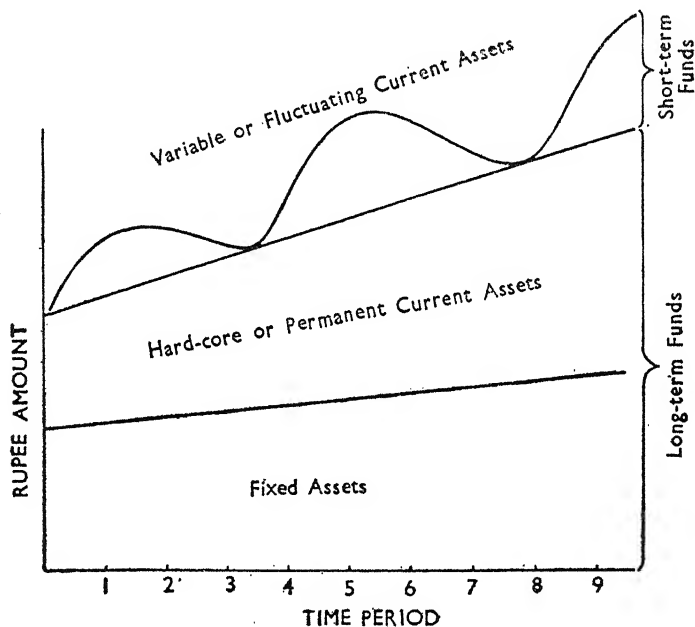


Fig. 1

A hedging approach to financing suggests that apart from current instalments on long-term debt, a firm would show no current borrowings at the seasonal troughs in Figure 1. Short-term borrowings would be paid off with surplus cash. As the firm's variable current assets would go up, it would borrow on a short-term basis, again paying the borrowings off as surplus cash was generated. Permanent funds requirements would be financed with long-term debt and equity (externally raised or internally generated). In a growth situation permanent financing would be increased in keeping with increases in permanent funds requirements.

It is interesting to note that the Tandon Study Group, set up by the RBI to frame guidelines for follow up of bank credit in July 1974, has also

recommended that the borrower's contribution from long-term funds should be the extent of the entire 'core' current assets.

Figure 1 shows the situation for a firm that attempts to match asset and liability maturities exactly. But firms may follow other maturity-matching policies if they desire. Figure 2, for example, illustrates the situation for a firm that finances all its fixed assets with long-term capital but part of its permanent current assets with short-term credit. Further, the dashed line could have been drawn below the line designating fixed assets,

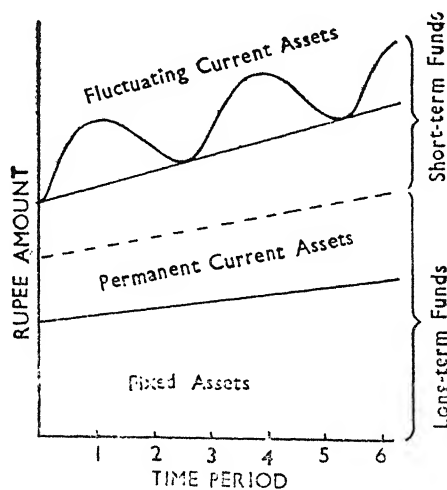


Fig. 2

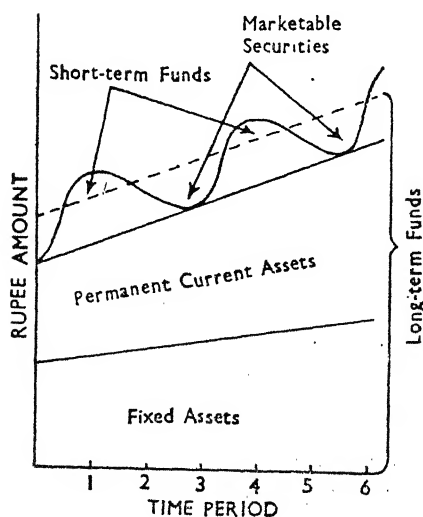


Fig. 3

indicating that all the current assets and part of the fixed assets are financed with short-term credit. It is actually the position in a number of corporate enterprises operating in India. This is a highly aggressive, non-conservative position and undertakings are very much subject to potential loan renewal problems.

Alternatively, as in Figure 3, the dashed line could be drawn above the line designating permanent current assets, indicating that capital is being used to meet long-term seasonal demands. In this case, the firm uses a small amount of short-term credit to meet its peak seasonal requirements. On the other hand, it 'stores liquidity' in the form of marketable securities during the off-season. The humps above the dashed line represent short-term financing and the troughs below the dashed line represent short-term security holdings.

It may be noted that the larger the percentage of funds obtained from long-term sources, the more conservative the firm's working capital policy. Why do firms use short-term credit to finance current assets? There are three primary factors determining the use of long-term versus short-term funds for financing current assets: flexibility, cost, and risk.

Flexibility. If the need for funds is seasonal or cyclical, the firm may not want to commit itself to long-term debt. If a firm expects its needs for funds to diminish in the near future, or if it thinks there is a good chance that such a reduction will occur, it may choose short-term debt for the flexibility it provides. A cash budget is used to analyse the flexibility aspect of the maturity structure of debt.

Cost. The cost aspect of the maturity decision involves the term structure of interest rates, or the relationship between the maturity of debt and the interest rate on the debt. If interest rates are lower on short-term debt than on long-term debt, management will like to utilise short-term funds. On the other hand, if short-term money costs more than long-term debt, it is advisable to make use of long-term funds.

Risk. Use of short-term debt subjects a firm to more risk than does long-term debt. This risk effect occurs for two reasons: (a) If a firm borrows on a long-term basis, its interest costs will be relatively stable over time, but if it borrows on a short-term basis, its interest expenses will fluctuate widely, often going quite high. (b) If a firm borrows heavily on a short-term basis, it may find itself unable to repay this debt or it may be in a shaky financial position that the lender will not extend the loan. Thus a big uncertainty is created.

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Management of Accounts Receivables

The financial executive often is responsible for the management of accounts receivables. The head of credit department may report directly to him. The credit department carries out work of granting credit and supervising the collection of receivables. The basic objective of receivable management is to maximise return on investment in this asset. Managing receivables means making decisions relating to the investment of funds in this asset as part of internal short-run operating process. The general liquidity management goal is to use cash funds as economically as possible in expanding receivables, without injuring sales and the chance for increasing short-run profits.

Approach. Financial executives try to keep the receivables investment low, that is, consistent with the two-fold purpose of maintaining adequate cash funds for current operations and expanding credit sales to take advantage of profit opportunities. Policies which stress short credit terms, strict credit standards, and highly aggressive policy of collections may work to minimise bad debt losses and the locking up of funds in receivables. But such policies may well restrict sales and profit margins and the rate of return on the total investment of the firm may be lower than that achievable with high levels of sales, receivables and profits. On the other hand, extremely lenient credit policy may increase receivables and bad debts without compensating increases in sales and profits. Therefore, the *objective of receivable management* is achieving a balance which results in the combination of sales and profit rates that maximise the overall return on the investment of the firm. To achieve this objective the fact of close co-operation of the financial executives with sales executives can hardly be over-emphasised.

The two basic liquidity goals in receivables management concentrate on: (i) prospect of collecting receivables when they become due, and (ii) prospect of shortening future receivables maturities. In other words, liquidity increases as the certainty of collecting the receivables at maturity

increases and vice-versa. The financial executive knows fully well that increasing liquidity of any asset decreases the risk to the owner's capital, and that decreasing liquidity increases the risk to owner's capital. As a general policy, he has to reduce this risk of loss to the shareholders' capital in receivables management so that it will be in general line with the prospect for profit generated by creating the receivables. The decision making problem, however, is blocked because the financial executive must consider the effect on profits as well as on liquidity of shortening the maturities of book debts.

In the short-run, the increase in the quantity of sales may increase profits either at the same or at the fast rate of increase in sales depending upon a particular fixed and variable cost pattern (operating leverage) of the business. An easy credit policy may put the profitability goal high above the liquidity goal. In that case financial executives will be confronted with the problem of using easy credit to promote sales and profit and how far to lean towards using tight credit to promote more liquidity. This is the basic problem and it requires financial decision-making in every business situation where credit sales are granted.

As credit transactions have grown, *credit decision making has become a major responsibility of financial management.* Every major transaction involves the decision: whether to grant credit or not? If so, how much, and on what terms? How should credit lines be established? How vigorous or relaxed should collection policy be? Some companies have written policy statements on credit but a good number of them use informal procedures.

The emergence of credit management as a major phase of business is being accompanied by a growing professionalisation of the field. Within business firms the recognition of credit function has a bearing on the development of credit policies that give direction to this activity and relate it to corporate objectives. Credit is closely linked to sales and often credit policies are oriented towards achieving the sales objectives. For instance, if a firm wants to expand sales in order to make use of idle capacity of plant, credit policies are likely to involve a relaxation of credit standards. On the other hand, if a firm is already operating near its existing installed capacity and no expansion of facilities is contemplated, the firm's policy may involve accepting only customers with high credit ratings. Moreover, from time to time, shifting economic conditions may also cause variations in a company's objectives which set in motion a reformulation of credit policies. Similarly, collection policies are oriented towards over-all corporate objectives. The desire to increase sales may lead to a permissive attitude and a willingness to overlook arrears in payment. The credit and collection policies are, therefore, designed to meet over-all corporate objectives by establishing the operating standards to guide actual performance.

Form of receivables. A policy of credit management requires basic information about the nature of receivables. The bulk of credit sales are made on open account, i.e., the seller keeps a simple record of the obligations arising out of sales and does not ask his customers for formal acknowledgement of their debts. In open account selling there is no security behind the obligation and no interest is charged on open account sales. The customers may be asked to sign notes or bills to pay by a specified date the amount extended to them on credit. The holder of this note or bill does not enjoy any priority of claim to payment from open account creditors in the event of debtor's insolvency and the subsequent liquidation of his assets for distribution to creditors. But the signed notes or bills do provide legal evidence of the validity of the debt and written stipulation of a due date, together with the practice of collection of these documents through bank. Further, it is easy to use notes and bills from customers as security for bank advances. The sale of durable goods such as refrigerators, sewing machines, radios, fans, bicycles, etc. is often made on terms that call for instalment payments extended over many months. Such sales are made subject to the terms of conditional sales contracts which give the seller (or his assignee) the right to recover the goods if payments are not made as agreed upon in the contract. Usually a significant cash down payment, often 25% to 40% of the retail price, is required and a significant amount of interest and other charges is added to the cash sales price. Such instalment contracts may be sold to a specialised sales financing agency or bank. In recent years, an increasing number of manufacturers of heavy industrial equipment have found it desirable to offer instalment credit terms to their customers. Some of them have promoted "captive" finance companies to take over these credits.

Level of receivables. The level of receivables in a company can be controlled by setting general terms of sale but there remains the task of selecting or rejecting the individual credit applicants from among the big mass of customers who are willing to meet the credit terms. Some business firms may decide not to grant credit at all like big departmental stores, multiple shops, super-markets. But custom and competition may limit the company's freedom of action in deciding whether or not to offer credit. In making this decision, the financial executive has to balance the net earnings obtained on the amount of sales that would otherwise be locked up in receivables against the cost of services his organisation may offer as a substitute for credit.

Once the decision to grant credit is taken the company is faced with the selection of the period for which it will grant credit and the size of any cash discount which it may allow for early payment. Once management has determined the role of credit in the package of goods and services

offered, the financial executive has relatively little impact upon the level of receivables. The level in the receivables will rise and fall with credit sales which in turn will vary with the general level of business activity and with changes in proportion of credit to cash sales. He may limit the amount of receivables by rejecting occasionally credit applications or he may speed the conversion of receivables into cash by aggressive collection policy. But these activities have a smaller effect upon the level of receivables than the initial and fundamental decision concerning the terms upon which credit is offered and the overall credit standards to be applied.

The following factors have a major role in shaping a firm's investment in receivables : (a) the volume of credit sales, (b) the terms of credit granted to customers considered credit-worthy, (c) policies and practices of the firm for selecting the customers, (d) the paying practices and habits of customers, and (e) the firm's policy and practice of collection.

Selecting and evaluating receivables. The selection and evaluation of credit risks form the basic pillar of credit policy. The credit-worthiness of customers is established by their debt-paying experience in the past and by the position of their net working capital and net worth that reflect their debt-paying capabilities for the future. Investigating potential customers before extending credit is an important step though there is no sure guarantee against loss. There are two factors that limit the extent of our search for information to judge the credit-worthiness of our customers : time and cost. It is a matter of matching incremental costs and revenues. The more we spend, the more information we may obtain. The additional information obtained may enable us to reach a better judgment on the customers' credit-worthiness and so avoid credit losses. But there comes a point when the incremental costs of credit investigation exceed the possible reduction in credit losses. There are many sources of information that may be used in making an assessment of trade risks.

Dun and Bradstreet, Inc. This well-known concern of the United States has got more than 100 years of experience in the field of credit reporting. Among its many services two are of basic importance to the credit manager : the reference book and written credit reports. The reference book is published six times a year though subscribers may elect to obtain the book less frequently or to obtain a reference book covering a region. Nearly three million business firms of all types are listed alphabetically according to city and State. Through a system of letters, numbers and symbols, information is provided concerning the line of business, the range of the company's estimated net worth and the estimate of the credit standing of the firm. If additional information is required then one has to ask for a credit report which shows the record of the prospective customer as established with other suppliers.

There are other credit reporting agencies in the U.S.A. which perform a service similar to that provided by D & B. For example, the National Credit Office (NCO) specialises in credit reports in the textile field, paints, leather products and certain other products. Similar mercantile credit agencies operate in other specialised fields. There is also the National System of Credit Management in the United States which furnishes a credit inter-change service. Participating firms provide their local bureaus with a list of their customers. When an enquiry is received concerning the payment habits of the company, the credit bureau seeks information from each of that firm's suppliers and prepares a summary of that information.

Unfortunately, such credit rating organisations, agencies and facilities do not exist in India. This is high time when action is required to organise such activities in our country. Banks may provide valuable credit information and this information may be specially useful if a particular question is asked whether or not the customer has pledged or hypothecated his inventory to secure a loan. Often, companies employ their salesmen to provide credit information in the form of reports regarding location and condition of customers' plant or stores, local competition conditions, form of business organisation, names of the suppliers, etc. In evaluating the salesman's view on the prospective customer's credit-worthiness one should not forget that the salesman is by nature an optimistic fellow who would like to make a sale. Many credit managers also try to visit their larger customers and those involving delinquency problems. But caution has to be taken that such visits may not give the impression to the customer that he is being "grilled".

Analysing credit-worthiness. Usually the decision concerning the degree of credit risk is largely a matter of judgment. Once the available sources of information have been used and a mass of data accumulated in the form of financial statements and plans for future financing, the data must be interpreted for making credit decisions. In reaching a credit decision, financial executives often keep in mind as basic criteria the four 'Cs' of credit—capital, capacity, character and conditions. Capital refers to the financial resources of a company as indicated primarily by the financial statements of the firm. Capacity refers to the experience of the customer and his demonstrated ability to operate successfully as indicated by the profit record of the company. Character relates to the reputation of management for honest and fair dealings. It is a very tricky consideration requiring a lot of caution. Conditions suggest the possibility of placing special limitations on the extension of credit to weak accounts. Some use the term "conditions" to stress the importance of business conditions or level of prosperity of customer's industry as a factor affecting his credit-worthiness. It is worth noting that the cost of credit mistake is not measu-

red by bad debts alone but by the trouble and expense of collecting funds and litigation in the case of accounts that are uncollectable.

For an estimate of general financial strength of prospective customers the management scrutinises the customer's financial statements and his plans for future financing. Comparative income statements and balance sheets are primary sources for this kind of evaluation. In addition, there are special reports such as cash flow statements, cash budgets, and *pro forma* balance sheets and income statements that throw light on the applicant's credit standing. Ratios of liquidity and solvency are calculated in addition to the operating margins and the rate of return on capital to throw light on the general financial strength. The limiting factor may be the long time required to make a complete financial analysis and sometimes lack of adequate current financial information from the prospective customer. The major ratios used for analysing the financial position of the prospective customer are : current ratio, acid test ratio or quick ratio, turn-over of receivables, debt to net worth, fixed assets to net worth. (For details about these ratios, see Chapter 5 "Ratio Analysis").

Average age of receivables. The average age of receivables is a quick and effective method of comparing the liquidity of receivables with the liquidity of receivables of the past and also of comparing liquidity of one firm with the liquidity of other competitive firms. It also offers a basis for projecting receivables balance into the future. The formula for computing the average of receivables is as follows:

$$X = \frac{R \times D}{S}$$

where: X=the average age of receivables

R=value of the receivables balance

D=number of days in the operating period

S=value of net sales for the operating period.

Assume R=Rs 20,000, S=Rs 60,000, D=90 days, then X will be $\frac{20,000 \times 90}{60,000} = 30$ days. Thus X or average age or average collection period will be 30 days. In the above example we have taken the sales (S) only for a period of 90 days (D), i.e., for three months. We can also make similar calculations for annual sales in which case D would be roughly 360 days and not 90 days. The average collection period can be examined in a business firm for quarterly sales for having a better view of variations in the receivables. But this calculation may not be possible for inter-firm comparison because quarterly sales may not be available for the competitive firms. In that case calculation has to be made on the basis of yearly sales.

This tool can be refined by making percentage calculation of increase or decrease in net sales and this rate of change can be compared with the percentage change in the average age of receivables quarter-wise as shown in Table 1.

Table 1
Comparing Average Age and Percentage Change

$$\left[\frac{R \times D}{S} \right] \quad D=90 \text{ days}$$

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Net Sales	Rs 150,000	180,000	210,000	200,000
Receivables	60,000	90,000	70,000	120,000
Average Age (days)	36	45	30	54
Net Sales (Rate of change)		+20	+16.67	-4.8
Average Age (Rate of change)		+25%	-33.33	+80

The comparison of average age of receivables at the end of fourth quarter with average ages in earlier quarters can provide useful information about the position of receivables. In the third quarter, there was a marked improvement in the efficiency of management to bring down receivables despite an increase in sales but in the fourth quarter there was a substantial increase in receivables though sales in this quarter declined. Financial executives do give special attention to receivables when they increase at a rate faster than sales or decrease at a rate lower than sales.

The average collection period in a company may be compared with industry standards and the records of individual companies. This period may also be studied from time to time to discover if any consistent trend is apparent. The average collection period may also be checked against the trade terms granted. The average collection period thus serves as a test of the conversion speed of the receivables into cash.

Classification of ages. The purpose of classifying receivables by age groups is to gain a closer control over the quality of the individual accounts. It requires going back to the receivables ledger where the dates of each customer's purchases and payments are available. This study is illustrated in Table 2.

From Table 2 one can note that almost 80% of receivables on December 31, 1975 were less than 60 days old. But to evaluate the position of receivables for control purposes, this information should be compared with earlier age classifications. For instance, the liquidity structure of debtors

increased over the period of three months as the position of the 60-day or younger class increased from 33% at the end of September to 80% at the end of December.

Table 2
Aging Schedule of Receivables

Age Classes (days)	As on December 31, 1975			As on September 30, 1975		
	Months of Sale	Balance of Receiv- ables	Percen- tage to Total	Months of Sale	Balance of Receiv- ables	Per- centage to Total
1—30	December	50,000	22.7	September	20,750	11.9
31—60	November	125,000	56.8	August	37,100	21.4
61—90	October	24,000	10.9	July	92,800	53.4
91—120	September	20,000	9.1	June	17,650	10.2
121 and more	Earlier	1,000	.5	Earlier	5,400	3.1
	Total	220,000	100.0	Total	173,700	100.0

The aging schedule, by indicating a tendency for old accounts to accumulate, provides a useful supplement to average collection period or receivables/sales analysis examined earlier. Because of an appraisal of receivables in terms of associated dates of sales, the aging schedule recognises recent bulges or slumps in sales. To evaluate the receivables' condition for control purpose, it may be considered desirable to compare this information with earlier age classification in that very firm and also to compare this information with the experience of other firms. Many financial executives get such schedules prepared at periodic intervals for control purposes. An inter-firm comparison of aging schedule of debtors is possible provided data relating to monthly sales and collection experience of competitive firms are available. This tool, therefore, cannot be used by an external analyst who has got no approach to the details of receivables.

Evaluating credit risk. At one time the ability to eliminate credit losses was widely regarded as a complete measure of the success of a credit manager. This approach resulted in turning down on the part of the credit manager the credit request of questionable customers. If the credit manager is expected to maintain a credit policy so strict that credit losses never occur, it may reflect very badly on his job. He may be turning down profitable business. The responsible executive has to balance the

risks of loss and burdens involved in locking up funds in slow paying accounts against the value to the firm of the actual and prospective sales to such accounts. In other words, the value of added business has to be compared with the degree of risk-taking in allowing credit. If a firm operates below capacity with a high level of fixed costs, additional volume may be handled at limited additional expense resulting in extra profits to the firm from the additional business. The following illustrations would clarify this approach.

Illustration 1. Assume that a prospective new customer is likely to purchase goods worth Rs 20,000 a month and his financial position is reported to be weak. He is likely to take 60 days to pay instead of the regular 30 days' condition. The firm is assumed as operating well below capacity. If it does not supply to the new customers, its competitors will. The average profit on sales is 15%. But further enquiry indicates that the out of pocket cost that will be necessary in producing and selling the additional Rs 20,000 a month will be only Rs 12,000 (60%). The net income before taxes would thus increase by Rs 8,000 (Rs 20,000—Rs 12,000) a month and not Rs 3,000 (15% of Rs 20,000) if we accept this account. The firm will be locking up on an average Rs 40,000 (if the outstanding receivable balance does not exceed 60 days' sales) and can expect additional revenue of Rs 8,000 a month or Rs 96,000 a year. If the account does not become bad till the next 5 months, the additional revenue from sales of Rs 1 lakh to him would be Rs 40,000 which is equal to the complete loss of Rs 40,000, average balance in this account. This approach measures the contribution of the additional volume in terms of the cost of sales revenue from the additional or out-of-pocket costs that the company will incur in producing and selling the additional goods. The additional cost does not include costs such as depreciation, general and administrative expenses which are expected to remain fixed despite this increase in volume of sales.

We have seen incremental revenues and costs in Illustration 1. This very reasoning can help us in considering whether to sell to groups of customers with varying percentage of risk of non-payment. If a financial executive has to decide whether he should accept a group of customers with 10% risk of non-payment as against a group of customers with 30% risk of non-payment, the analysis in Illustration 2 can prove useful.

Illustration 2. The cost analysis in a firm shows that against a sale of Rs 100, the additional costs attributable to this sale is Rs 60, the balance of Rs 40 represents fixed costs and profits. Conceptually, in considering whether to sell to a group of customers with a 10% risk of non-pay-

ment, an estimate of added annual income and expenses can be prepared as follows :

A. Incremental Issues by accepting 10% risk of non-payment :

		Rs
Added Sales by accepting 10% risk group		40,000
Amounts uncollected (10%)		4,000
		<hr/>
Added Revenue		36,000
Added production and selling	Rs	
costs (60% of sales)	24,000	
Added collection costs	2,000	
	<hr/>	
Added expenditures		26,000
		<hr/>
Incremental income		10,000
		<hr/>

By accepting this 10% risk group, the firm could have an incremental income of Rs 10,000. It may like to push on into the poorer grade credit risks, provided it has still unutilised plant capacity, until the point where estimated added revenue equals to estimated added expenditures. This point will be reached at 30% risk of non-payment with our assumptions as shown below :

B. Incremental Income by accepting 30% risk of non-payment :

		Rs
Added sales by accepting 30% risk group		50,000
Amounts uncollected (30%)		15,000
		<hr/>
Added Revenue		35,000
Added production and selling	Rs	
costs (60% of sales)	30,000	
Added collection costs	5,000	
	<hr/>	
		35,000
		<hr/>
Incremental Income		Nil
		<hr/>

Now general rules can be suggested for fixing the line of credit. Often credit managers set the limit at 10% of the customer's net worth but this rule of thumb ignores many factors such as the value of the customer's account to us, customary terms of credit, and the nature of business. Moreover, as a short-term creditor we are not as interested in the customer's net worth as in the liquidity of his current assets.

Often, companies develop more precise measurements of risk by instituting a point system which gives a certain number of points for the number of years the customer has been doing business with the company. This approach has been found a worthwhile attempt at satisfactory decision-making. But this may not be liked by the credit man who sees his years of experience being replaced by an adding machine. At the present stage of development, the management of accounts receivable is largely an art; with further developments in credit analysis, credit managers may come to rely less on intuition.

Appraisal of credit policy. A correct evaluation of the performance of the credit department is difficult. The various tools of analysis such as average collection period and aging of accounts receivables measure two needs at the same time—efficiency of granting credit, and efficiency of collecting past due accounts. If terms and credit standards are relaxed, the pressure will be on the collection staff to speed the inflow of funds from accounts receivable. On the other hand, if a company is very strict in granting credit, it may not even need a collection department.

The possible measures of appraising performance of the credit department are as follows: (a) percentage of orders rejected to credit sales; (b) percentage of monthly collections on past due accounts to the accounts due at the beginning of each month; and (c) percentage of bad debts to credit sales. When taken together these measures may present a picture of undesirable strictness or leniency. Thus an unusually low turnover of receivables in relation to the characteristic ratio of the industry, a negligible reduction rate, a high proportion of past due accounts, a low collection ratio, and a low percentage of collection on past due accounts would require tightening of credit standards and collection procedures. The problem would have to be analysed on the basis of historical and horizontal standards in order to find out whether or not percentages and ratios are unusually high or low.

Collection of receivables. Often customers do not respond the way in which a company plans. Some customers pay on time, others are slow but do finally pay, and others never pay their debts. These are recognised facts of the business world that should be taken into consideration in planning for collection and in planning for bad debt losses on credit sales. Financial executives can lessen the risk by establishing policies for stimulating collections. A lot has been written on the art of gentle but effective “needling” to slow-paying customers so that payment may be obtained without giving much offence and risking future business. One may eliminate credit sales altogether but considering its unfavourable effect on sales and profit it can hardly be justified. Another suggestion is

to shorten the period of credit by fixing the credit terms on one month basis instead of 60 days' terms. But here one should take into account the competition and prevailing custom in the business. The inflow may be accelerated by granting cash discounts, say, 2% for payment within 10 days as against net payment within 30 days. While net payment is expected within 30 days, the cost of this cash payment of 20% comes out to 36% because it means the release of funds for 20 days ($2 \times 360/20$). Is it desirable to bear such a high cost? A definite answer can hardly be given to this question because cash discounts may enable the business to minimise the risk of non-payment. How much should a company spend on following up uncollected delinquent accounts? This may be a salvage operation that may cost more than it yields in liquidity. Unless the methods are properly timed and tactful, they may result in lost customers and decreased sales which may be detrimental to future profits. In forming collection policies for slow accounts, therefore, the financial manager should attempt to evaluate the risk of potential losses in sales in addition to estimating the actual expenses of collection.

A company has also to plan for uncollectables, *i.e.*, bad debts. This is a financial accounting problem of providing for a special allowance or reserve for such loss. It is a general practice in business to treat the estimated loss as an expense in the period that the sale is made instead of waiting until the cash loss accrues. The decision making problem is to decide how much a fair and reasonable amount to charge against book profits for the current period. It is often desirable for the creditor to seek a compromise settlement with an embarrassed customer that may result in some payment while permitting the customer to stay in business. If the customer has many debts, which may be the case, a compromise settlement may not be feasible unless other creditors also join in the compromise. To help achieve such collective action, creditors' committees in some industries provide a continuing organisation to bring the credit officers of the co-operating concerns together as need arises. Such efforts have proved successful particularly in case of a few textile units in Ahmedabad. In fact, experience dictates that a creditor should carefully investigate compromise settlement before he resorts to the more drastic use of full legal remedies which may be remedies in name only. It is just like trying to get the best out of the worst bargain.

Besides maintaining an efficient collection department, the company management may explore the possibility of converting a certain portion of receivables into cash through the use of credit insurance. Credit insurance is designed to protect manufacturers, wholesalers and other traders from unusual credit losses. If a bank or a financing agency extends a loan

secured by accounts receivable, it may require that a credit insurance policy for the accounts receivable is taken and the bank or financing company is nominated as beneficiary. The credit insurance facilities are still not much developed in India.

Planning investment in receivables. We have discussed the various factors affecting receivable balances but these factors have to show up finally in tangible written forms and plans of some kind if some action has to be planned. There are two approaches for helping financial managers in executing receivable management policies—(i) pro forma plan for receivable investment, and (ii) budgeting receivable investment. Both these approaches simplify the tasks of attaining liquidity and profitability goals.

Pro forma plan. The pro forma plan for receivables investment is a projection into the future of the firm's receivable balances used in the past. This is done with the use of average collection period. Instead of assuming one relationship between accounts receivable and sales, management may provide for different relationships to forecast receivable balances.

Budget receivables investment. The purpose of the receivable budget is to plan in more detail the components of receivables by estimating credit sales and collection. Like other budgets, the receivable budget is a valuable tool for internal control of funds. It can be prepared as shown in Table 3.

Table 3
Receivables Investment Budget

	Jan.	Feb.	March	April	May	June
Receivables	75,000	62,500	71,900	86,350	100,700	85,250
Credit Sales	50,000	60,000	55,000	65,000	45,000	45,000
Total Receivables	125,000	122,500	126,900	151,350	145,700	130,250
Collections	62,000	50,000	40,000	50,000	60,000	50,000
Gross Receivables	63,000	72,500	86,900	101,350	85,700	80,250
Less Bad Debt (1 % of sales)	500	600	550	650	450	450
Net Receivables (EOM)	62,500	71,900	86,350	100,700	85,250	79,800
Average Age (days)	31	36	43	50	42	40

For preparing Receivables Investment Budget, the collections in credit sales should be scheduled at a monthly basis and a provision, based on past experience, should be made for bad debt as percentage to sales. In this illustration, it has been assumed at 1%.

Financing accounts receivables. Accounts receivables may be financed either through the outright sale of such accounts by the business, or through borrowing with the receivables assigned as security. The outright sale of accounts, known as "factoring", is very common in the United States but not in India. Factors usually purchase accounts receivable without recourse and it is common to notify the customer that his account has been sold. If factoring is conducted on a continuing basis the seller's invoice may provide that the sum due is payable directly to the factor.

Instalment papers in case of conditional sales agreements are sold on the same basis to a sales finance company by the dealer selling goods on the instalment plan. Loans against pledge of accounts receivable are made by some commercial banks. The amount of advance usually ranges from 70% to 90% of the face value of accounts receivables, depending upon their quality. The interest charges may vary widely, depending upon the financial strength of the borrower and his customers. The attitude of banks is slowly changing towards accounts receivable as security. In earlier periods, the banks hesitated to enter into loan agreement with accounts receivable as security. Any such loan was regarded as a serious financial drawback on the part of that firm. But position has considerably changed now. Accounts receivable, in fact, represent an asset of sound value and the closest asset to cash time-wise.

The lending institutions usually take the following *precautions in advancing loan* against the security of account receivable: (a) They reserve the right to select the account that will be acceptable to them as security. Effort is made to screen-out all past over-due accounts and accounts of financially weak concerns or those with a poor reputation for payment. (b) Accounts typically are accepted with recourse, i.e., the borrower agrees to replace those accounts that are not paid in time with acceptable accounts or to reduce the amount of loan accordingly. (c) The lender advances only a certain percentage of the face value of the accounts pledge, say 75%, to keep a good margin to cover his risk. A maximum limit also is often established on the total amount that will be loaned regardless of the total value of the security. Loan agreements provide that the borrower must submit in support adequate evidence about the validity of the accounts and has to authorise the lender to inspect the borrower's books upon demand.

It has been found from experience that discounting bills with the bank is a costlier method of financing than collecting the payment of bills through the bank.

There has been a continuous shift in top management policy objective of minimising credit losses towards one of maximising over-all profits of the company. This latter approach balances the gains from more sales due to more accommodating credit policies against the larger investment in receivables and the higher credit losses that may be expected from relaxed credit policies. The existence of excess productive capacity and the related fact that in many industries the incremental cost of producing and selling additional units is small have induced the corporate management to have a liberal credit policy. In many industries, competition in sales through liberal credit policy has been found easier to administer than price-cutting. The management has been appreciating the policy of tolerating bad debt losses provided they are covered by the profits accruing from the rising volume of sales.

Computers and credit management. There has been an increasing use of electronic data processing equipment in credit management. Computer provides certain essential up-to-date information needed for analysis. All of the information previously placed on receivable ledgers can be placed on punched cards or tapes. As a result, the credit department has very quick access to this information. At frequent intervals, it can obtain a trial balance that gives a summary of all billings, payments, discounts taken, and amounts still owed. It can also obtain an aging of accounts showing the total amounts owed to the firm, the portion that is current, 30 days past due, 30 to 60 days past due, and so forth.

In addition, the computer can be programmed to provide complete reports on delinquent accounts for having an efficient follow-up system. Management may also want to be informed when an account approaches the line of credit established for it and computer can provide this information easily.

Computer helps the credit manager by providing timely and accurate information on the status of accounts. The payment history of a customer can be drawn from storage and printed out in seconds. Special reports can be prepared that involve categorization or comparisons. For example, if several companies in the same industry or from the same region are slow in their payments at a particular time of the year, management might want to know the firm's experience with all other companies in that particular industry or region. As the number of debtors grows, many firms start using computers

SOLVED PROBLEMS ON CREDIT POLICY AND COLLECTION

I. Financial Analysis of Liberal Credit Policy

A firm's product sells for Rs 10 a unit, of which Rs 7 represents variable costs before taxes (including credit department costs). Current annual sales are Rs 12 lakhs, represented entirely by credit sales, and the average total cost per unit is Rs 9 before taxes. The firm is considering a more liberal extension of credit which will result in a slowing process of the average collection period from one to two months. This relaxation in credit standards is expected to produce a 25% increase in sales, i.e., Rs 15 lakhs annually. With this percentage increase, the unit sales and total costs of the firm will be as follows:

Present Sales × Average Cost	= Rs	12,00,000 × .9	10,80,000
Additional Sales × Marginal Cost	= Rs	3,00,000 × .7	2,10,000
New Sales & Total Cost	= Rs	15,00,000	12,90,000

The average cost per unit of sales at the new level of sales

$$(1,50,000 \text{ units sold at Rs 10 per unit}) \text{ is } \frac{12,90,000}{1,50,000} = \text{Rs } 8.60 \text{ per unit}$$

Assume that the firm's required return on investment is 25% before taxes.

$$\text{Profitability of additional sales} = (\text{Rs } 10 - 7) \text{ or } 3 \times 30,000 = \text{Rs } 90,000$$

Present average investment in receivables

$$= \frac{\text{Annual Sales}}{\text{A/R Turnover}} \times \frac{\text{Average Cost per unit}}{\text{Selling price per unit}}$$

$$= \frac{12,00,000}{12} \times .9 = 1,00,000 \times .9 = \text{Rs } 90,000$$

$$\text{Average investment in receivables after change in credit policy} = \frac{15,00,000}{6} \times .86 = \text{Rs } 2,15,000$$

$$\text{Additional investment in A/R} = 2,15,000 - 90,000 = \text{Rs } 1,25,000$$

$$\text{Required rate of return on additional investment} = 25\% \text{ of } 1,25,000 = \text{Rs } 31,250.$$

Thus profitability of additional sales, i.e., Rs 90,000, is much higher than the required rate of return on additional investment, i.e., Rs 31,250.

II. Cost and Benefit Analysis of Cash Discount

The firm has annual credit sales of Rs 15 lakhs and average collection period of two months, and the sales terms are net 45 days, with no discount given. The annual turnover of receivables is six times, the average receivables balance is Rs 2,50,000. By offering terms of 2/10, net 45, if the average collection period is reduced to one month and that 50% of the customers (in Rupee value) take advantage of the 2% discount. The opportunity cost of the discount to the firm is

$$.02 \times .5 \times 15,00,000 = \text{Rs } 15,000 \text{ annually.}$$

However, the turnover of receivables improves to 12 times a year so that the average receivables are reduced from Rs 2,50,000 to Rs 1,25,000. If the average cost per unit is Rs 8.6 and the selling price Rs 10 per unit, there is a Rs 1,07,500 reduction in the investment in receivables. If the required return on investment is 25%, this reduction represents opportunity savings of Rs 26,875 (Rs 1,07,500 \times .25). Thus opportunity savings from a speed-up in collections are greater than the cost of discount.

III. Default Risk Analysis

Credit policies involve the risk not only of the slowness of collection but also of bad debt. We consider the present credit policy in relation to two alternative policies which are assumed to produce the following results:

	Present Policy	Policy A	Policy B
Additional Demand (%)	0	25	35
Average Collection Period	1 month	2 months	3 months
Percentage of Default	1	3	6

From Illustration (I), we know that with a 25% increase in sales to Rs 15,00,000 the average cost per unit is Rs 8.60. With a 35 per cent increase in sales to Rs 16.20 lakhs, unit sales and total cost would be:

Present Sales \times Average Cost	1,20,000 \times 9	= Rs 10,80,000
Additional Sales \times Marginal Cost	42,000 \times 7	= 2,94,000
	1,62,000	Rs 13,74,000

The average cost per unit of sale volume of 1,62,000 units is

$$\frac{13,74,000}{1,62,000} = \text{Rs } 8.48 \text{ per unit.}$$

The profitability of the two credit policies in relation to the required rate of return on investment can be summarised as below:

		Policy A	Policy B
Additional Sales (Units)		30,000	42,000
I Profitability of additional sales	Rs	90,000	1,26,000
Annual Sales	Rs	15,00,000	16,20,000
Turnover of A/R		6	4
Average A/R	Rs	2,50,000	4,05,000
Bad debt losses (default of actual sales)	Rs	45,000	97,200
Cost of bad debt losses (average cost per unit) (A=8.60; B=8.48)	Rs	38,700	82,425
Present bad debt losses (1%)	Rs	12,000	12,000
Cost of present bad debt losses (average cost of Rs 9 per unit)	Rs	18,000	10,800
Cost of additional bad debt losses	Rs	27,900	71,625
II Profitability of additional sales less cost of additional bad debt losses	Rs	62,100	54,375
Average investment in A/R (at average cost per unit)	Rs	2,15,000	3,43,440
Additional investment in A/R over present investment (Rs. 90,000)	Rs	1,25,000	2,53,440
III Required return on additional investment			
X (25%)	Rs	31,250	63,360
Y (20%)	Rs	25,000	50,688

Comparison of I, II and III situations will help in decision-making process.

IV. Cost-Benefit Analysis of Collection Programme

	Present Programme	Programme A	Programme B
Annual collection expenditure	Rs 50,000	Rs 70,000	Rs 1,00,000
Average collection period	2 months	1½ months	1 month
Percentage of default	3	2	1

Present sales are assumed at Rs 12,00,000 and price per unit is Rs 10. The average cost is Rs 9 a unit. These figures are not expected to change with changes in the collection effort.

	Present Programme	Programme A	Programme B
Annual Sales	Rs 12,00,000	Rs 12,00,000	Rs 12,00,000
Turnover of A/R	6	8	12
Average A/R	Rs 2,00,000	1,50,000	1,00,000
Average investment in A/R (at average cost)	Rs 1,80,000	1,35,000	90,000
Reduced investment in A/R		Rs 45,000	90,000
Required return on reduced investment (25 %)		Rs 11,250	22,500
Bad-debt losses (% of sales)	Rs 36,000	24,000	12,000
Cost of bad-debt losses (average cost)	Rs 32,400	21,600	10,800
Reduction in cost of bad-debt losses from present cost		Rs 10,800	21,600
Required return on reduced investment plus reduction in cost of bad-debt losses		Rs 22,050	44,100
Additional collection expenditure from present expenditures		Rs 20,000	50,000

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12

Management of Inventory

Inventories, measured by rupee value, constitute the major element in the working capital of many business undertakings. Control of inventories—which in manufacturing concerns include raw materials and supplies, goods in process, and finished goods—is often the most important problem in the management of capital. The problems of managing inventories in manufacturing enterprises are relatively complex. Once they are understood, the basic concepts can be applied to inventory problems in commercial and trading concerns.

The area of inventory management covers the following individual phases: determining the size of inventory to be carried; establishing timing schedules, procedures, and lot sizes for new orders; ascertaining minimum safety levels; co-ordinating sales, production, and inventory policies; providing proper storage facilities; arranging the receipt, disbursement and procurement of materials; developing the forms of recording these transactions; assigning responsibilities for carrying out the inventory control functions; and providing the reports necessary for supervising this over-all activity.

Within these individual phases, much of the work done is specialised and requires a technical knowledge of subjects of procurement, production, material handling, etc. Consequently, many inventory decisions are made by persons within the purchasing and production departments. The financial executive is only one of the persons in top management concerned with the levels and fluctuations of investment in inventories. Production executives who are concerned with keeping the production operations go on smoothly and at minimum cost, and sales personnel who are concerned with maximising sales and full service to customers, are closely concerned with inventory management practices and policies.

Inventory and financial manager. The inventory programme is part of the planning budget which often falls within the financial area. As management becomes increasingly aware of the necessity of inventory control, ultimate responsibility is placed more and more in the hands of the financial manager who is playing an increasingly important role in determining the general nature of controls exercised, the methods of balancing the relative costs involved, and the measurement of performance of inventory controls. He may be having supervisory authority in these areas or he may be a member of policy committee with broad responsibilities. In smaller firms, he often participates even more directly in the management of inventories.

Though the corporate financial manager may not be directly concerned with inventory policies, the inventory policies have a direct and important bearing on the financial needs of the firm. He can do a good job of anticipating change in the need for funds if he thoroughly understands the implication of changing inventory policies and positions. He has to help directly in shaping inventory policies where finances are a limiting factor. *Good inventory management is good financial management.* The greater the opportunity cost of funds invested in inventory, the greater the incentive to reduce the lead time required to receive inventory once an order is placed. The greater the efficiency with which the firm manages its inventory, the lower the required investment in inventory. Inventories should be under constant review.

The financial manager should pay attention to the following aspects of inventory management: (i) Action taken against imbalances of raw material and goods-in-process inventory that may limit the utility of stocks to that item which is in shortest supply. Here one can appreciate the common saying that the strength of a chain lies in the strength of its weakest link. (ii) The full safety against shortages of inventory has a prohibitive cost. There should, however, be reasonable procurement lead-time assumptions and safety stock levels. (iii) Production schedules, as far as possible, should be firmly adhered to for reducing inventory of raw materials and in-process goods. In case of a change of production schedule, purchasing department should get early notification. (iv) There should be an efficient system to dispose of goods that are obsolete, surplus or unusable for production. (v) Continuous efforts have to be made to shorten the production cycle. The longer production runs should be worth the cost and risks of the extra inventory investment. (vi) Special pricing policy may be required to move extremely slow moving finished items.

The business firms which are chronic patients of shortage of funds may find to their advantage that a serious look into their inventory accu-

mulation proves highly rewarding. Often one is inclined to agree with the observation that "when you need money, look at your inventories before you look to your banker." Even if there is no shortage of funds in a business, the financial executive has to participate actively in the formulation of inventory policies with a view to speeding inventory turn-over ratio and maximising return on investment.

Financial managers are concerned with any aspect of inventory management that is controllable from the stand-point of reducing inventory costs and risks. Let us now examine inventory costs and inventory risks.

Inventory costs. The subject of cost has not been sufficiently covered in the existing literature on inventory management. The problem is complicated because these costs vary from company to company and it becomes difficult to make generalisations. Evaluation of these costs often is difficult as most of them do not appear on accounting records *per se* and consequently they have to be developed. In many cases they are difficult to isolate and in some cases they have to be estimated on the basis of judgment considering whether they are long-term or short-term costs.

The most critical cost in inventory situations is the cost of capital tied up in the inventory. This cost is expressed as a percentage of the value of the inventory and is based on past experience. But it can vary with time as conditions change. Generally it is set at the level which management policy may dictate.

Evaluation of the cost of shortages is also difficult because one can hardly know what the costs are if there is a failure to fill an order. However, it is often possible to determine the cost of expediting production so as to avoid a loss of order. In other cases, it may be possible to determine relevant opportunity costs.

The cost of inventory control should not be overlooked as it involves human and mechanical effect costing money. Different control systems have different costs and produce different results. These considerations should be a factor in determining which system is used.

Costs relating to inventory of raw materials can be examined under two heads: ordering costs, and carrying costs. Ordering costs are payments for secretarial services, written and other forms of communication, book-keeping, quality analysis and any other outlay that is incurred preparatory to or in the actual process of placing the order. These costs are fixed because regardless of the number of units ordered at any one time the costs for preparing and placing the order are just about the same. It, therefore, follows that unit procurement costs vary inversely with the quantity ordered. On the other hand, carrying costs include expenditure for storage, handling of materials, extra heat, light, refrigeration, insurance

and property taxes. Interest on investment in inventory is also included in this cost. Carrying costs are nearly proportionate to the value of inventory and they are usually computed on the average investment, i.e., opening and closing balances of inventory divided by 2.

Which of the inventory costs are pertaining to decisions concerning the level of inventory to be carried? To answer this question, we have to determine those costs that will vary with the level of inventory carried, i.e., those costs that will increase if we add our inventory and decrease if we reduce our inventory. In general, costs relating to space occupied remain fixed in the short period regardless of normal variations in inventory. Similarly, depreciation expense continues whether the storage areas are used or not. Some of the elements of inventory service costs like insurance, material handling, record keeping are partially fixed but for the most part these costs and the cost of funds allocated for any inventory vary with the rupee level of inventory. In short, inventory costs are a mixture of fixed and variable costs. For planning the levels of inventory, we are interested only in the variable portion of these costs, that is, costs which would be affected by our plans. For purposes of discussion we assume that these variable costs vary directly with the rupee amount of inventory carried. Studies of over-all costs of carrying inventory show the estimate ranging from 10 to 30% of inventory value.

Inventory risks. The risks in inventory management signify the chance that inventories cannot be turned over into cash through normal sales without a loss. Such risks can be traced to three basic factors: price decline, product deterioration, and obsolescence.

Price decline may result from an increase in the market supply of product, introduction of a new competitive product, price cutting by competitors. A significant common characteristic of these supply factors is that they are not usually controllable in the short run by the individual business. These are the risks that management have to live with and counteract as much as possible by controlling inventory holdings. On the demand side, a decrease in the general market demand when supply remains the same may also cause price to decrease. This is also a long-run management problem as decrease in demand may be due to change in customer buying habits, tastes and incomes.

Product deterioration may result due to holding a product too long or it may occur when inventories are held under improper conditions of light, heat, humidity and pressure. Deterioration may vary in degrees and it usually prevents selling the product through normal channels. The basic causes of deterioration such as holding products too long and under improper conditions lie within the scope of physical inventory control.

In recent years, the risks of inventory obsolescence have been very significant. Changing customer tastes, particularly in high style merchandise, may make finished goods, work-in-process and even raw materials obsolete. This vulnerability to obsolescence is not restricted to luxury consumer goods. Changing needs of industrial customers, new production techniques or product improvements by competitors may force changes in product specifications and design that cut the value of old model stocks and of components of materials used in the earlier models. As the trend of technical change and product development shows evidence of acceleration, full sensitivity to the hazards of inventory obsolescence becomes more urgent. These risks may prove very costly for the firms whose resources are limited and tied up in slow moving inventories. Obsolescence is a risk least controllable except by reduction in inventory investment. Thus inventories are risky assets to manage and the effective way to minimising risks lies in an efficient system of inventory control.

There are some factors which tend to reduce level, while others are inclined to raise it. The former include reduction of investment in inventory, minimisation of obsolescence, avoidance of product spoilage and deterioration, reduction of storage and handling costs, space limitations, taxes. On the other side, the factors which tend to raise levels of inventory are: increased product mix, longer production runs, facility of scheduling and co-ordination, better customer service, constant production changes. These conflicting pressures are resolved after keeping in view the over-all objective of inventory control in mind.

Inventory control

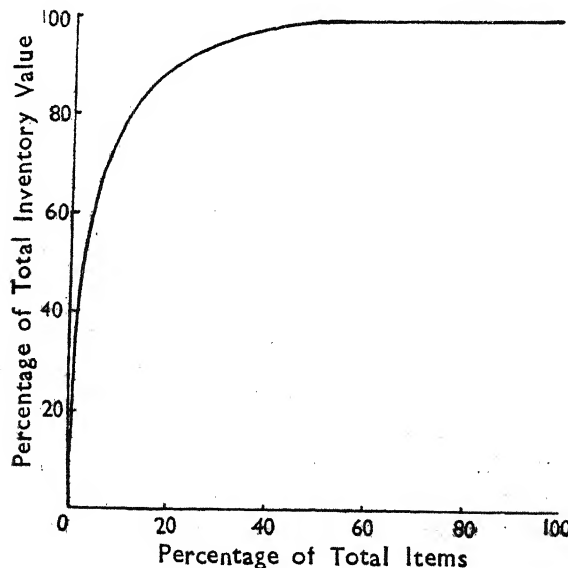
Objectives of inventory control. Why do we want to control inventory? Typical answers to this question may be: to provide customer service in the face of sales and production fluctuations; to take action against expected increase in sales; to handle production variations; to manufacture goods in economic production runs; to promote flexibility in plant scheduling; to promote more flexible raw material scheduling; to take advantage of a favourable raw material price; to take advantage of distribution costs; to provide buffer for over-runs or mis-runs; to keep storage equipment operational; to allow for errors in measuring and recording production and sales; to protect against strikes and work stoppages and acts of God; to speculate against price and cost changes; to minimise costs and maximise profits; to avoid running out of stock; to keep inventory within the available storage capacity; to control capital investment; to maximise sales or share of market. More often than not there will be two or more answers to this question. Many of these answers are overlapping too.

Inventory control systems. Various systems have been developed by business concerns to control their inventory. The ultimate objective of inventory control programme is to provide maximum customer service at a minimum cost. Some of these inventory control systems are discussed below :

ABC analysis. Where there are many items in the inventory it becomes essential to have a value-item analysis (popularly known as ABC analysis) which attempts to relate how the inventory value is concentrated among the individual items. This analysis is made by classifying the items into three categories—A, B and C; A being the most important and C being the least. The classification is based on value, usage rate and criticality of the item. All these criteria may be given specified weightages. Value and usage rate are easily quantifiable but criticality is decided by judgment. After classification the items are ranked by their value and then the cumulative percentages of total value against the percentage of items are noted. A detailed analysis of the inventory may indicate (Exhibit 1) that only 10% of the items may account for 75% of the value. Another 10% of the items may account for 15% of the value and the remaining 80% items may account for 10% of the value. The importance of this tool lies in the fact that it directs attention to the key items. The

Exhibit 1

Value-Item Analysis



term ABC means that the high value items are considered in the A category, medium value in the B category and low value in the C category. Different control mechanisms have to be devised for each category.

Mini-max system. This is one of the oldest methods and is still widely in use. For each type of inventory a maximum level is set that demand presumably will not exceed as a minimum level representing a margin of safety required to prevent out-of-stock conditions. The minimum level also governs the ordering point. An order of sufficient size is placed to bring inventory to the maximum point when the minimum level is reached.

Two bin system. In this system, the stock of each item is separated into two piles, bins or groups. In the first, a sufficient supply is kept to meet current demand over a designated period of time; in the second, safety stock is available to meet the demand during the lead time necessary to fill the order. When the first bin stock has been exhausted, reordering occurs and the stock in the second bin is used to cover requirements.

Order cycling system. In this system, periodic reviews are made of each item of inventory and orders are placed to restore stock to a prescribed supply level. The frequency of review generally depends upon the criticality of the item. For instance, the critical items may require relatively short review cycles. On the other hand, the lower cost non-critical items are given longer review cycles since stock-outs would be less costly. At each review date the required amount is ordered to bring the inventory to the pre-determined supply level.

Statistical inventory control systems. A number of firms with widely spread distribution systems find the use of mathematical models and electronic computers to work out distribution patterns, inventory locations and levels that best reconcile considerations of customer service, manufacturing and distribution cost, and inventory turnover. Thus mathematical approaches have been developed to help inventory management decision. In the United States, more operations research efforts have been devoted to controlling inventories than to any other problem area in business and industry.

The application of operations research depends upon the availability of suitable information for cost comparisons. As a result, analysis has been sharpened and more accurate data have been compiled. The solutions sought indicate which of several alternative procedures should be selected. To reach this decision, information is necessary on how costs vary with the procedure, which means segregating those costs affecting inventories into their fixed and variable components. Once the cost break-down is available, the solution to the different kinds of inventory

problems lies in balancing the relative costs incurred under the alternative possibilities.

Through operations research, techniques have been developed to inter-relate these costs and to determine mathematically the level that minimises total variable cost. Whether or not operations research techniques are employed as such, inventory planning requires that the costs underlying different procedures be carefully balanced so that the most economic level may be discovered.

Despite the interest shown in applying mathematical approaches in the area of inventory management, stimulated by operations research and the computer, the National Association of Accountants found in a field survey that "relatively few of the companies approached did report the application of these mathematical concepts to their own inventory management." (Research Report No. 40, 1964).

Budgetary control system. Through budgets, inventory consumption and levels are co-ordinated with the expected usage. The inventory budget is a dynamic planning control that accomplishes the same general purpose as the controls for planning cash position and debtors. The inventory budget is a plan for investing funds in stocks at regular intervals *via* raw material purchases, goods in process of manufacture, and finished goods. The budget is also a plan for releasing funds from inventories to flow into more liquid assets through sales.

Analysis of investment in inventory

Numerous persons are interested in the analysis of a firm's inventory investment. They may be the shareholders, credit analysts of the lending institutions, the credit men of important suppliers or the financial executives of the firm. Unless the external analysts receive more information about inventories than is usually available from the published financial statements, the depth of analysis and understanding is limited. This is particularly true if only annual statements are available and inventories are reported in a single lump sum. On the other hand, the financial office has full access to available sources of data and thus is able to arrive at more meaningful conclusions.

Ratio analysis. Often it is helpful to determine changes in inventory investment in relation to changes in the volume of sales. Commonly used ratios to show the relationship between inventories and sales are as follows: (a) number of average days' sales in inventory (average age of inventories); (b) inventories as a percentage of sales (cost of goods sold, if ascertainable, is better than sales for the calculation of this ratio); and (c) inventory turnover ratio (which is reciprocal of the *b* ratio).

The average age of inventory is a relationship between the rupee quantity on hand at the beginning or end of an operating period, and the quantity purchased or manufactured over the whole period—purchased when management is concerned with the age of finished goods. This relationship for inventory of raw material can be stated as follows:

$$\text{Average age of inventory of raw materials} = \frac{\text{RM}}{P} \times D$$

where: RM=raw material balances at the end of the period

P=total purchases during the period

D=number of days in the period.

Assuming that Rs 10,000 in materials are on hand at the end of an accounting period of 12 months, and that purchases during that period were Rs 60,000, the average age of inventories determined by this method is $\frac{10,000}{60,000} \times 360 = 60$ days. The key value in this ratio is $\frac{10,000}{60,000}$ which is $1/6$, showing that on each rupee of purchases, on an average 16·7 paise worth of goods were held in the inventory balance. The formula for determining the average age of finished goods inventory can be rewritten as

$$\frac{\text{FI}}{\text{CGS}} \times D$$

where: FI=finished goods inventory balance at the end of the period

CGS=cost of goods sold during the period

D=number of days in the period.

The ratio $\frac{\text{FI}}{\text{CGS}}$ indicates what proportion of each rupee of total manufacturing costs is invested in the finished inventory balance. Assuming an inventory of finished goods of Rs 25,000 and cost of goods sold at Rs 1,00,000, the relationship is $\frac{25,000}{1,00,000} = 25\%$ of the cost of goods sold¹ are still invested in finished goods inventory. If the manufacturing period consisted of 360 days, this means that funds are invested in finished inventories for an average of 90 days. This ratio may be calculated for different years with a view to comparing the performance of inventory management.

The calculation of inventories as a percentage of sales (or cost of sales) is simple and its reciprocal is inventory turnover ratio which indicates the number of times inventories are turned over during a particular period. Often analysts prefer to use the average of beginning and ending

¹ It is preferable to use cost of sales or cost of goods sold rather than net sales figure.

inventories in calculating turnover ratios instead of ending inventories. It is argued that use of average inventory figure gives a more accurate turnover figure but it plays down the influence of recent inventory figure which may be the item of particular interest to the management as a guide to future development.

If a break-down of inventory is available, inventory sales ratios should be calculated for each category of inventory and for each product line in order to pin-point the changes in the inventory which are out of line with sales movements. For inter-firm comparison of these ratios due care must be taken as there may be varying policies of accounting and valuation. It is extremely difficult to supply value judgments on the basis of these summary ratios. These ratios should be used to suggest more questions than answers as they may give many clues but few conclusions.

The widely used inventory turn-over ratio may be found inadequate to evaluate the effectiveness of the inventory control programme. This ratio obscures differences between individual items and may employ obsolete cost data particularly when LIFO (Last-In-First-Out) valuation is applied and may be distorted by accounting changes such as written down inventories. For these reasons the National Association of Accountants Report suggests that "perhaps the best approach to measuring effectiveness of inventory practices would be one that attempts to measure directly those costs that inventory control system is designed to minimise." It is interesting to note that despite the scientific advancements in the field of inventory control, rule of thumb and intuition are still commonly relied upon to reach inventory decisions which are often made by persons at the clerical level. Companies now are trying to employ the refined concepts and extend their use to new divisions; and some companies are beginning to experiment with them.

Aging schedule of inventories. Classification of inventories according to age helps to provide deeper insight into the problem of inventory. This mathematical approach requires the location of the particular purchases and/or the particular manufactured goods that are moving out slowly into production and/or sales. In other words, raw materials have to be identified by their purchase dates and finished goods by their completion dates. The following statement can help in knowing the steps necessary for using this tool.

It may be seen that in this firm 50% of the inventories came under the age classification of 46 to 60 days and 15% were older than four months.

Classifying Inventory Ages
(Inventories on hand : July 1, 1968)

Age Classification (Days)	Date of purchase or manufacture	Amount Rs	Percentage to total
0—15	June 16	16,000	20
16—30	June 12	8,000	10
31—45	May 26	4,000	5
46—60	May 10	40,000	50
61 and above	April 25	12,000	15
Total		80,000	100

Managing investment in inventory

Inventory of raw materials, processed goods and finished products serve a buffer or “change absorbing” function. Basic major inventory levels of raw materials, work in process, and finished products are examined below.

Investment in raw materials. All manufacturing firms have to carry inventory of raw materials which include stores, supplies, sub-assemblies, and purchased components. The investment in this inventory increases with purchases and goes down as materials, components, stores, etc., are issued for conversion into the production process and are taken up in work-in-process inventory.

The level of raw material inventory is influenced by the following considerations :

1. Volume of safety stocks to have an uninterrupted production :
(i) procurement lead-time; (ii) volume of usage.
2. Economy in purchase of large lots.
3. Determining the reorder point.
4. Balancing of costs and risks.

Safety stocks. They serve a cost reducing function by minimising risk of production due to ‘out of stocks’. A decision is required as to the likely cost-inflating or income-losing consequences of running out of material stocks. Management must consider the probabilities of running out of stock, the size of inventory in relation to delays in production or delivery of orders and the relation of the costs of carrying inventory to the cost of being out of stock.

Procurement lead-time and conditions of supply determine the level of safety stocks. The time from when the need for more inventory is

recognised until the time it becomes available is called "lead" time. Attention has to be given to the speed and reliability with which supplies can be expected. A firm may carry very small stock of an item in raw material inventory if its supplier is nearby and customarily carries sizeable stocks on hand. On the other hand, if a key component is made available on a made-to-order basis from a far-off manufacturer who has heavy backing of orders, larger inventory of this item is essential. Supplies of some raw materials, available only at certain times of the year, require a heavy accumulation of inventory. Similarly, threats from events like industry-wide strike among the suppliers of a particular item of raw material may also affect inventory levels.

The predictability of production needs affects the inventory level which is set in terms of anticipated usage in production. Once levels are set in these terms, fluctuations in anticipated and actual usage are responsible for much of the change in inventory investment. If it is difficult to plan productions accurately, unexpected fluctuations are absorbed to a considerable extent by safety stocks. It may be a mistake not to use safety stocks for this purpose. If there is a random increase in the rate of use of some item, the safety stock of that item can be allowed to go down rather than to place rush orders to replenish the inventory.

The costs of being out of stock may be the cost of closing the production line. In some continuous process industries such as an oil refinery or steel mill this may be very high. The cost of emergency purchase orders should also be considered. Management should not push investment in safety stock beyond the point where the added cost of carrying inventory exceeds the savings gained by avoiding delays in following orders. But it is difficult and time-consuming to estimate this point. Therefore, efforts should be directed to those inventory items which account for a significant rupee value of the total inventory, that is, coming under "A" category and also to those which are specially critical to the maintenance of an even flow of production and sales.

Economy in purchase. Considerations of purchase economy affect stock levels. Lower costs per unit of inventory item typically come about because of spreading certain fixed costs over a larger number of units. Management should attempt to balance the costs of carrying inventories of raw material against the benefits obtained from purchasing in large lots rather than small. At what point do the additional costs of carrying more inventory outweigh the additional savings that may be obtained from ordering in larger amounts? This critical question requires the following conceptual treatment.

Take an illustration. We make the following assumptions with reference to an item in the inventory of raw materials :

Annual inventory carrying charge (Variable cost)	=10% of average rupee value			
Purchasing cost per order (Fixed cost)	=Rs 2.50			
Requirements for year (Usage)	=800 units			
Price per unit	=Re 1			
(A) Order size	80	200	400	800
(B) No. of orders (800/A)	10	4	2	1
(C) Average Inventory (A/2 × Re 1)	Rs 40	100	200	400
(D) Inventory carrying cost (10% × C)	Rs 4	10	20	40
(E) Ordering cost (Rs 2.5 × B)	Rs 25	10	5	2.5
(F) Total cost (D + E)	Rs 29	20	25	42.5

This tabulation shows that the most economical purchase would be 4 orders of 200 units. If the orders are reduced to 2 for 400 units, the ordering cost will be reduced to Rs 5 but there will be an addition of Rs 10 to costs of carrying inventories. As the additional costs exceed the additional savings, it would not be economical to push order size to 400 units. On the other hand, it would not be economical to reduce average inventory by placing 10 orders of 80 units because this will cut carrying cost to Rs 4 but will raise ordering cost to Rs 25. This determination of economic size of order is known as Economic Order Quantity (EOQ). The EOQ can be determined by the use of the following formula :

$$EOQ = \sqrt{\left(\frac{2 \times A \times S}{P \times i} \right)}$$

where : EOQ = Economic Order Quantity (in units)

A = Estimated Annual Usage of the item (in units)

S = Cost of handling an order expressed as rupee per order (fixed cost)

P = Cost price per unit

i = Cost of carrying inventory stated as a percentage of the average inventory value (variable cost).

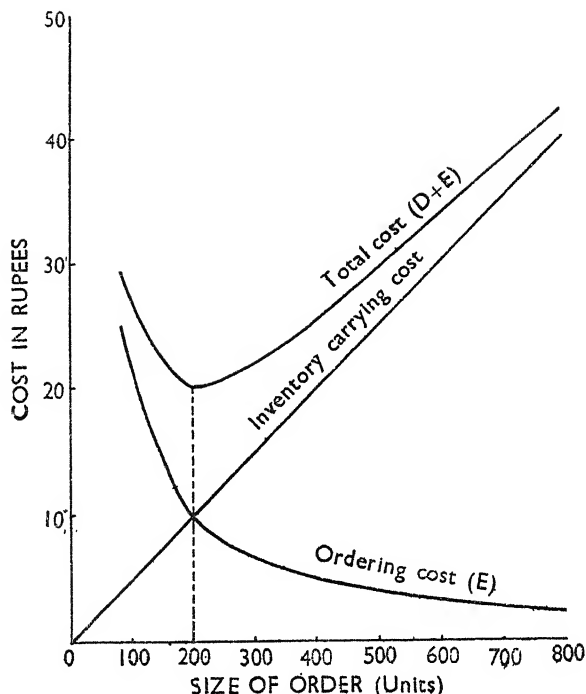
By substituting values, we have :

$$EOQ = \sqrt{\left(\frac{2 \times 800 \times 2.5}{1 \times 10} \right)} = 200 \text{ units.}$$

EOQ can also be located on graph (Exhibit 2) at the point of intersection between the fixed and variable cost lines.

Exhibit 2

*Relation Between Size of Order and Cost of
Carrying Inventory*



It is not possible as well as advisable to determine EOQ for each item of inventory. EOQ may be computed for items which are relatively small in number but account for a very large percentage of total inventory value, i.e., "A" category items. Even for these items, the use of EOQ does not provide sufficiently close control. Management must give more constant attention to the rate of use, procurement lead-time, and safety stocks. With high value items, the size of timing of each purchase order is a separate decision.

Often companies prepare EOQ tables which show the economic order quantity under different assumptions. If the ordering costs are the same for all items of inventory, the table will show the EOQ corresponding to different annual usages and costs per item purchased. In other words, only two variables have to be considered—annual usage, and cost per unit. The equation can then be expressed as follows :

$$EOQ = K \times \sqrt{\frac{A}{P}} \quad \text{where: } K = \sqrt{\frac{2S}{i}}$$

To illustrate this equation, we can substitute values to find K.

$$K = \sqrt{\frac{2 \times 2.5}{.10}} = 7.07.$$

The EOQ for each item may thus be determined simply by taking the square-root of the ratio of the annual usage and cost per unit and multiplying the result by 7.07 :

$$\begin{aligned} 7.07 \times \sqrt{\frac{A}{P}} &= 7.07 \times \sqrt{\frac{800}{1}} \\ &= 7.7 \times 28.28 = 200 \text{ units.} \end{aligned}$$

It should be noted that as the cost price per unit rises, the EOQ decreases. For instance, if the cost per unit is Rs 4 instead of Re 1, then EOQ will be as follows :

$$7.07 \times \sqrt{\frac{800}{4}} = 7.07 \times 14.14 = 100 \text{ units.}$$

Determining the re-order point. In addition to finding out the optimum quantity to include in each purchase order, it is necessary to know the *time to place the order*. Here a balance is aimed at between carrying costs and stock-out costs. It is obvious that the more the inventory a firm keeps, the less likely it is to run out of stock but the greater are the carrying costs. On the other hand, the less inventory carried, the lower the carrying cost but the greater is the likelihood that the shortfalls will occur. It is difficult to measure stock-out costs though these costs are real and include such things as the cost of preparing and following up back-orders, the profit that is lost, and the potential loss of future sales due to customers' dissatisfaction.

If the demand for a product can be anticipated exactly, it may be possible to ascertain with relative ease the optimum inventory level at which the firm can place an order. For instance, a manufacturer may be knowing that he would require exactly 50 units of an item of raw material stock each week, that two weeks are required to replenish inventory, and that his EOQ is 200 units. If he does not want to run out-of-stock he may place an order each four weeks (to allow for usage) when his inventory drops to 100 units (to allow for the replenishment period). But in most cases the future demand cannot be defined precisely and companies, therefore, develop probability distributions of future usage based on experience.

In practice, firms can rarely carry enough safety stock to eliminate stock-outs completely. They can rather attempt to reduce stock-outs to a certain degree. In such a system, recording would be based upon an accepted standard of stock-out frequency, *i.e.*, the reordering point may

occur at the level which would produce, say, not more than one stock-out per stock item in two years. Through this method, inventory controller is in a position to help management to evaluate the reasonableness of inventory policies. As in the case of economic order quantities, tables are developed to permit stock clerks to select the optimum reorder point under given assumptions. In a complete inventory control programme, provision is made to determine both the optimum EOQ and the reorder point. With an expected usage of certain units during the reorder period, a safety stock is carried.

Balancing the costs. In the determination of the optimum inventory level, the costs of carrying raw material inventory are of major significance. They include the costs of storage facilities, property, insurance, loss of value through physical deterioration, and costs of obsolescence. A figure for interest on investment should also be included in this estimate of costs. In many firms financial resources may be so limited and the problems of raising funds so great that need to minimise investment becomes the dominant consideration in inventory policies. Often an expected rise in price of certain items of raw material may increase investment to maintain a given volume of inventory.

Investment in work-in-process inventory. This inventory comprises the goods in the process of manufacture. It includes the cost of raw materials transferred to the work-in-process account plus charges of wages and other direct costs of manufacture together with an allocation of overhead costs. The length of complete productive process determines the value of this inventory at any one time. In case of ship-building business, production and assembly of the complicated parts will extend over many months as against a bottling plant processing aerated water. Thus technological considerations largely dictate the length of time required for the production process. But management policies also have significant influence on the investment in processed goods inventory. For instance, in case of a firm manufacturing durable goods an important decision area is the extent to which components or sub-assembly items should be produced in longer runs or in short-runs close to the time they are needed for assembly. Sometimes actions that speed the production process may increase output without proportionately increasing the in-process inventory. For example, second and third shifts may be added to increase production without a proportionate increase in inventory. The firms, having poor production scheduling and control, face problems and delays in moving jobs through the plant and as a result find much larger amounts tied up in processed inventory. Other factors which influence investment in processed goods inventory are: volume of production, price levels of raw materials used, usages, and other items that enter into production

costs. In planning the outflow of cash to support this inventory, it is necessary to determine which of the anticipated expenses will require payment (depreciation, for instance, calls for no cash payment) and to provide for these payments according to the time schedule.

Investment in finished goods inventory. Finished goods inventories are built-up additions from the production line and are reduced with sales. The business firms may find it advantageous to maintain high level of finished goods for timely execution of orders. Where demand for goods is uneven, small, or seasonal, inventory of finished goods enables management to have longer production runs and more even and efficient production scheduling. Inventories of finished goods are also carried due to the seasonal supply of vital raw materials because demand for such finished goods is spread throughout the year. This is mostly true in agri-based industries like canned foods, sugar, cotton textiles, jute, tea, etc. Inventories of finished goods may be influenced by sales considerations like prompt delivery due to competition and customer satisfaction. The widely spread distribution system in some companies may require maintenance of inventory at a high level. Industries in seasonal business often try to force merchants to share the inventory burden. For example, manufacturers of woollen goods may require their wholesalers and retailers to carry a larger part of the inventory.

Inventory of finished products, as seen earlier, vary inversely with sales. If sales fall below expectations and production cannot be cut back immediately, unsold goods pile up. If the sales decline is short-lived, production may give maximum return on investment if the sales pick up in the near future. In case the declining trend of sales persists, action may be required to have drastic production cut-backs to bring inventories in line with reduced sales prospects. Otherwise the manufacturers will experience severe cash stringency even leading to business failures. This critical relationship of sales forecasting to effective inventory management can hardly be over-emphasised. Increasing effort is made by management to improve their "feel" for customers and their intentions and to react promptly to shifts in demand.

Anticipation stocks. Inventories of finished products which are in addition to the safety stocks and are designed to carry a business through a seasonal bulge in purchasing, production or sales are termed as 'anticipation stocks'. The first step in the determination of anticipation finished goods inventory is to prepare a forecast of sales by period along with an estimate of the probable degree of error in the forecast. Possible error can be provided after comparing past forecasts with active results. In case

the chances of error are many, the opportunities for recovery from a poor estimate are small, and penalties of error are large, it is advisable to build ample anticipation stocks. On the other hand, if production can be timely adjusted to sales, anticipation stocks need not be high. The guiding principle in planning the level of anticipation stocks is to minimise the combined cost of being out of stock and the costs of carrying inventory. This concept can be appreciated by the study of the tabulated results comparing the level of stock under two plans of production (Table 1).

Table 1
Determination of Level of Anticipation Stocks

	Jan.	Feb.	Mar.	Apr.	May	June	Total
Estimated Sales (units)	100	80	40	100	160	120	600
<i>A. Level Production</i>							
Production	100	100	100	100	100	100	600
Inventory (end of month)*	20	40	100	100	40	20	
Safety Stocks	20	20	20	20	20	20	
Inventory in excess of Safety Stocks	0	20	80	80	20	0	200
							unit-months
Cost of carrying one unit one month	=Re 1						
Cost of anticipation stocks for level production	=Rs 200						
<i>B. Planned Production</i>							
Production	100	80	80	100	120	120	600
Inventory (end of month)*	20	20	60	60	20	20	
Safety Stocks	20	20	20	20	20	20	
Inventory in excess of Safety Stocks	0	0	40	40	0	0	80
							unit-months
Cost of carrying one unit one month	=Re 1						
Cost of anticipation stocks for planned production	=Rs 80						

*Opening balance of 20 units assumed.

An assumption has been made about the estimate of the unit of sales (demand) for each month. Sales vary from 40 to 160 units per month. By using inventories to "disassociate" production from sales, the advantages of level production can be obtained at the cost of carrying additional

inventory. The level production plan to produce 100 units every month will result in increasing inventories as high as 100 units, or 80 units in excess of assumed safety stocks of 20 units. Over the entire period of six months, a total over-stock of 200 unit-months will be carried. On the assumption that it costs Re 1 per unit to carry inventory for one month, the inventory carrying cost under the level production plan is Rs 200.

The level production plan may be replaced by a pure seasonal production plan to produce strictly in accordance with the sales pattern in order to reduce over-stocks. If actual sales follow estimated sales, the firm may end each month with the minimum safety stock of 20 units. But this seasonal production pattern is not considered desirable for several reasons and it may not even be possible to follow this pattern if there is no capacity to produce 160 units in May (the maximum level of demand).

As a compromise between level production and fully seasonal production plans, there is a "planned production plan". Under this plan, production varies from 80 to 120 units in a month and the anticipation inventory is reduced to 80 unit-months and cost of carrying stock to Rs 80. Against this inventory carrying cost of Rs 80, management has to balance the added cost of fluctuations in production. With variable production there may be costs of overtime, lay-offs, training and so on. If these costs exceed Rs 120 ($\text{Rs } 200 - 80 = 120$, i.e., the saving of inventory carrying cost that resulted from adopting the planned production plan), it will be unwise to accept this alternative. Other intangible considerations concerning labour relations may also enter the decision-making process. By experimentation with various alternative production plans, a production pattern is set to meet seasonal demand with the desired degree of safety and keeping the combined production and inventory carrying cost at a minimum.

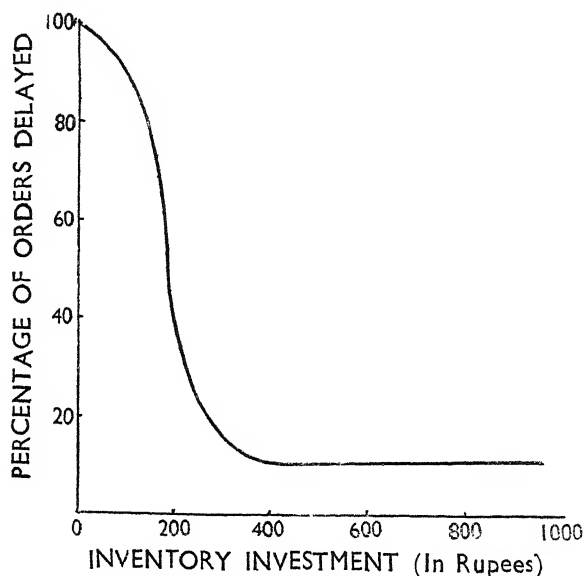
Balancing the costs. Is it true that the higher the level of finished goods inventory, the smaller the danger of delivery to a customer? The answer is 'No'. A firm has little control over the items or quantity that its customers may order. It is nearly impossible to eliminate 'out-of-stocks'. While a firm can reduce the number of delayed orders by increasing the inventory of finished goods, it does not reduce them in proportion to the increase in inventory. Experience concerning the relationship between inventory size and delayed orders suggests that it is somewhat as given in Exhibit 3.

An increase in inventory investment from Rs 100 to Rs 200 brings a marked reduction in the percentage of delayed orders from about 90% to 40%. But a corresponding improvement is not obtained if investment is increased further. An inventory investment of Rs 400 may result in

reducing the percentage of orders being delayed to 10 but an additional investment of Rs 200 may not reduce further the percentage of delayed orders.

Exhibit 3

Relationship Between Percentage of Delayed Orders and Rupee Investments in Inventory



It is difficult, in practice, to determine the precise relationship between percentage of delayed orders and the size of inventory. Records of the frequency of 'stock-outs' at different levels of inventory can help to have a 'feel' of this relationship.

The problem of finished goods inventory would be simple if there were no carrying costs. But management is faced with certain cash costs which may increase at about the same rate as finished goods production is increased: storage, handling, insurance and property taxes. It has to plan investment in finished goods so that the combined fixed and variable costs directly related to finished goods inventory are at a minimum. This may be done by constructing a model investment plan for *production run* as was done for raw materials purchasing (EOQ).

Fixed costs are basically the same regardless of the size of the production run, and inventory carrying costs are in the nature of a certain percentage of the average value of each production run. A firm is assumed to produce 12,000 units of finished goods. It can do this all in one

long run or in any one of the several alternative ways of two or more runs. We further assume that each run has fixed costs of Rs 150, that each unit of finished product is worth Rs 5, that carrying costs are 8% of the average value of inventory, and that average inventory investment is equal to total value of inventory in each run divided by 2. Under these assumptions, the most profitable solution is to have four runs to produce 3,000 units per run during the year. This information is tabulated in Table 2.

Table 2
Determination of Optimum Production Run

(A) Production run (units)		2,000	3,000	4,000	6,000	12,000
(B) Number of runs $\frac{12,000}{A}$		6	4	3	2	1
(C) Average Inventory $\left(\frac{A}{2} \times \text{Rs } 5\right)$	Rs	5,000	7,500	10,000	15,000	30,000
(D) Inventory carrying cost $(8\% \times C)$	Rs	400	600	800	1,200	2,400
(E) Production run costs $(B \times \text{Rs } 150)$	Rs	900	600	450	300	150
(F) Total Cost (D+E)	Rs	1,300	1,200	1,250	1,500	2,550

The formula for determining the optimum production run for finished goods is:

$$OPQ = \sqrt{\left(\frac{2 \times F \times S}{P \times i}\right)}$$

where: OPQ = Optimum Production Quantity (in units)

F = Estimated Annual Production of item of finished inventory (in units)

S = Fixed costs for producing finished inventory item

P = Price per unit of finished inventory item

I = Cost of carrying inventory stated as a percentage of the average inventory value.

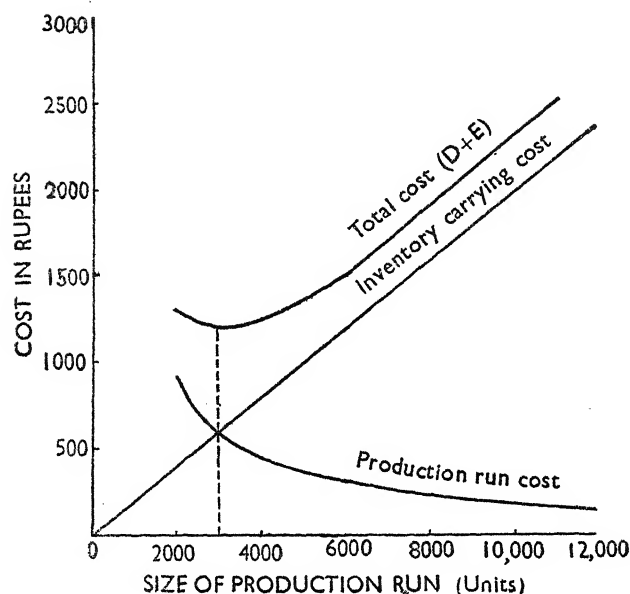
Substituting our values:

$$OPQ = \sqrt{\left(\frac{2 \times 12,000 \times 150}{5 \times 0.08}\right)} = 3,000 \text{ units.}$$

The OPQ can also be located in Exhibit 4 like EOQ at the point of intersection between the fixed and variable cost lines.

Exhibit 4

*Relationship Between Size of Production Run
and Cost of Carrying Inventory*



Valuation of inventory

Reported profits are affected by the way inventories are priced. The method of valuing inventories can have an important effect on the analysis of, and decisions about, liquidity and profitability. High inventory valuations result in an overstatement of earnings, a false sense of adequacy of working capital, possible distribution of liberal dividend and bonus payments, and excessive tax payments. On the other hand, understatement of inventory values minimizes financial strength and may lead to eventually heavy tax burdens if the inventory is disposed of and added profits are realised in a period of high tax rates. Avoidance of these extremes is required by adopting a basis of valuation that minimizes the effect of commodity price changes.

The main methods of inventory valuation commonly in use are: specific cost; first-in-first-out (FIFO); last-in-first-out (LIFO); average cost; cost or market price, whichever is lower; and inventory valuation allowances. The first four methods are employed where physical units can be differentiated and actual price paid for each unit is known. The first-in-first-out method uses the most recent prices paid for the goods as a basis for valuation. It gives inflated inventory values in periods of rising prices

and understated values in periods of falling prices. The last-in-first-out method results in a matching of the cost of current purchases against current sales, so that the valuation basis for inventory does not ordinarily change despite fluctuations in prices. It would be seen that declining prices in a period of high tax rates enhance the attractiveness of FIFO method because profits are curtailed when the cost of goods sold is charged with the earlier prices which were high. On the other hand, LIFO method results in freezing inventories at original cost and a combination of rising prices and high tax rate favours this procedure because of its moderating effect on reported profits. The average cost—involving use of simple, weighted or moving averages—is merely an attempt at pricing inventory at the average of prices paid over a period of time.

Cost or market price, whichever is lower, method is a combination of both actual cost and replacement cost. Under conditions of declining prices the inventory value will be reduced to market price so that working capital will decline to reflect anticipation of future loss. When prices are rising the inventory will be valued at cost, which will give smaller working capital and profits than replacement cost.

The use of inventory valuation allowances anticipates future price declines, style or technological changes that may not reduce the value of stocks on hand. This method provides protection against overstatement of working capital through the use of inventory valuations that may not stand up in the light of future development but such valuation allowance does not ordinarily lessen income-tax payable because it is not recognised by the tax authorities for reducing taxable income.

In the selection of a method of valuation, consideration is given to the size and turn-over of inventories, physical nature of the inventory, frequency and magnitude of price fluctuations, the price outlook, the tax laws and the prevailing practices in the field.

Measuring the performance

The problem of measuring management performance in the area of inventory management is very significant. Measurement of performance on a single item basis is easier but on an aggregate basis complications arise because aggregate measurements often have questionable character unless the individual items have related demand and supply characteristics and are controlled by similar systems. Aggregate measurements also have the disadvantage of averaging extremes. Therefore, it may be desirable to have more than one measurement. Some of the important measures used for appraising performance are given below.

Quantitative goals. If the objective of inventory management is to minimise cost then the measure of performance should be the summation

of the relevant costs. This calculation, in practice, is very difficult because these costs are not always readily obtainable.

Inventory levels. Inventory level, particularly in terms of volume as well as value, is an important measure of performance. Limits are fixed for inventory levels and action is taken whenever inventory exceeds or goes down below the specified limits. This is known as control by exception. It is often helpful to break-down the inventory into different classifications. A firm may have a certain amount of inventory of cycle stock, safety stock, speculative stock, anticipatory stock, obsolete stock and so on. A total figure may be insignificant whereas a sub-total may be found very meaningful.

Level of customer service. It is an important measure of inventory effectiveness and can take form such as the percentages of orders filled from stock or stock-out rate (number of stock-outs per year). The use of this measure depends upon the ease and determination of the number of stock-outs.

Inventory to sales. It is based on relationship between the inventory and sales and gives a measure how long the current inventory will last at the present sales rate. If there are more than one item in inventory, this ratio must be carefully used. The lead-time in replenishing inventory is important in evaluating the significance of this ratio. The reciprocal of this ratio is sales to inventory which indicates how much sales are generated by a unit of inventory.

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Banks Meeting Working Capital Needs

I. ADVANCES AGAINST INVENTORY

There are two systems of granting advances by banks on the security of inventory: (i) "key loan" system, where goods are secured by pledge and are in the actual or constructive possession of the bank; and (ii) "open loan" or "cash credit" system, where a letter of hypothecation is taken by the banker and the goods are allowed to remain in the custody of the borrower with a certain flexibility and freedom for the borrower to deal with the goods with the prior knowledge and consent of the bank. The question arises: what is the difference to the bank between pledge and hypothecation in the scope and extent of security held by it? It has been held in a case, decided by a Division Bench of the High Court of Madras, *the Nadar Bank Limited vs. the Canara Bank Limited* (reported in 1960 II Madras Law Journal 489) after a review of the case law, that juridical relationship between the parties is still that of the pledger and pledgee, though in mercantile practice the latter system is termed as "open cash credit". The possession of the pledgee need not be manual, but may be constructive. The condition that the prior knowledge and consent of the pledgee is necessary for the pledger to deal with the goods ensures the constructive possession as well as the character of the pledgee.

In actual practice, banks face real difficulties where the property and possession remain with the borrower under a hypothecation and they have to establish their claims against third parties. Moreover, in insolvency, the doctrine of 'reputed ownership' is likely to defeat the claims of a bank. This provision in the insolvency law is designed to protect third parties who may take into account the amount of stock which a person has at his disposal in considering his solvency at the time of granting credit. Unless there is something to displace the reputed ownership of the borrower, for instance, by the display of the sign-board of the bank or by the

stationing of a bank's chowkidar with badge and uniform, the lender's rights may be in danger in the event of insolvency or a pledge to a third party. Thus a lender has to be extra-vigilant in case of hypothecated inventory.

In the case of advances to limited companies registered under the Companies Act, 1956, the first thing to ensure is the power of the company to borrow and the proper authority entitled to borrow and make a validity pledge of the company's goods on behalf of the company. Section 125 of the Companies Act makes it obligatory for a company to register with Registrar of Companies the charges created by it within 30 days after the date of the creation of such charges. Where such charge has been registered, any person acquiring such property or any part thereof or any share of interest therein is deemed to have notice of the charge from the date of such registration. Registration is not obligatory in the case of pledge of the movable property but it is considered desirable by banks to register such pledges wherever possible since any person subsequently acquiring such property shall not be heard to plead that he had no notice of the charges.

Inventory under pledge. Before granting an advance against a particular commodity, the bank makes enquiries about the purpose and the period by which the advance is required and carefully looks into the marketability of the commodity. If the advance is for cornering stocks or for mere speculation, the application for advance is normally looked upon with disfavour. After satisfying on this score, the bank takes delivery of the goods and verifies their value. Difficulty may not be experienced in ascertaining the quantity and the quality of the stocks in case of organised industries due to well-constructed godowns for keeping inventory. Moreover, the borrowing enterprises may maintain regular books of account, thereby facilitating the work of verification. The verification of stock is usually a complicated problem; and banks have to trust the borrower and advance funds considering the submitted statements instead of going through the laborious process of verification.

Often banks take godowns on rent in their own name for storing the pledged goods. This is possible in big cities where ample godown accommodation is available. In other cases, display of the bank's name plate over the place of storage constitutes an important step in establishing the fact of pledge of goods. It also serves the purpose of notifying the public about the bank's interest and has almost the same effect as renting the godown in bank's name. Bank maintains registers showing the periodical fluctuations of prices of various commodities in which it is interested. This serves not only as a guide to ascertain the adequacy or otherwise of the

margin in each amount but also serves as a guide to possible market fluctuations in future years.

After ascertaining the market value, the next problem is the determination of margin. In case of staple commodities margins are generally fixed beforehand, looking to the steadiness of demand and the facilities for marketing. But these margins are not absolute. When market prices are abnormally high, the usual margins do not suffice as there is always a possibility, if not a probability, of a steep fall in prices. Hence vigilance is required in accepting the commodities as security and in fixing appropriate margins. The financial position of the borrower is also taken into consideration in fixing the margin. A first class constituent is able to secure, by negotiation, a lower margin while a constituent of moderate means is generally required to maintain a higher margin. It is, therefore, a matter of discretion for the bank. The question of margin is also considered in relation to nature of the commodities concerned. Commodities which have a steady demand and are easily saleable may be considered for a lower margin as against commodities with numerous and unstandardised varieties.

After taking the delivery of the goods offered by the borrower by way of pledge and deciding the amount of advance, certain documents have to be executed. There are no hard and fast rules about the documents since each bank has its own set of forms which agree in fundamentals. Some banks obtain a formal application from the borrower when making an advance against goods which is useful in proving that advance has been made in the usual course of business and serves to obviate the plea of ignorance on the part of the borrower binding him to the statement he makes to the bank about the quality, quantity and market value of the goods offered as security.

After taking charge of the goods a certificate is issued by godown keeper to that effect. This certificate practically forms the basis on which the advance is made. Some banks, however, do not have the system of obtaining this certificate but rely upon stock reports submitted by borrowers and verified by godown keepers. This report removes the needs for taking an application from the borrower or obtaining a certificate from the godown keeper as mentioned earlier. The borrower's declaration contained in this report is of special importance as it binds the borrower to the statement he makes and any material mistake in his statement would amount to criminal misrepresentation of facts. The declaration covers not merely the quantity, quality and market value, but also the ownership of the goods and the borrower's interest in them. The godown keeper may not commit himself in the report to a statement that he has verified the goods or taken charge of them. He may merely forward the

stock report to the bank. This procedure is adopted mainly to relieve the bank of the responsibility of being accountable for the exact quantity and quality of the stocks pledged.

Where advances are made by way of cash credit, the Demand Promissory Note is taken from the borrower for the sanctioned limit. This Note is accompanied by a Letter of Continuity which intends to continue the liability on the Promissory Note. These documents are similar to those taken for ordinary overdraft accounts. The borrower is allowed to draw on his account upto the limit available according to the value of stocks under pledge. This drawing power is calculated and recorded in a separate book whenever goods are stored or delivered and whenever there is a considerable fall in prices.

Instead of an application for an advance and a Letter of Pledge, some banks obtain from the borrower an ordinary letter known as "Take Delivery Letter" requesting the bank to take delivery of the goods specified in it. This procedure is simple and has the advantage of avoiding stamp duty. The fact of pledge can be proved with the help of this letter and it is considered sufficient for all practical purposes. While this procedure is simple, it gives room for several doubts and difficulties in the event of bank having to enforce the security. Therefore, this procedure is not much in vogue amongst banks.

The Letter of Pledge specifies the terms and conditions on which an advance is made. It is in the nature of a special agreement and modifies the rights the pledger has under the law to the extent required by the bank. Most of the clauses in the Letter of Pledge are incorporated as a result of practical difficulties experienced by banks from time to time.

Inventory under hypothecation. Stocks under bank's lock and key can be kept by way of pledge so long as they are in raw condition. But during the period they undergo an industrial process preparing them for the market, the possession of stock must necessarily remain with the firm. Banks, therefore, have no other alternative but to accept such stocks as security by way of hypothecation if they desire to finance the firm. Hypothecation implies that the possession and the property of the goods remain with the borrower and only an equitable charge is created in favour of the lender.

This is not a very satisfactory position for the banks as they cannot have the preferential claim in the event of insolvency of the borrower and in case of attachment of the goods by another creditor or if the goods are pledged by the borrower to a third party having no notice of the hypothecation to the banker. Experience, however, has shown that though advances against hypothecation of goods are more risky than advances against pledge of goods, the possibility of losses through dishonesty of borrowers

is very small. Therefore, such advances form a fairly large proportion of the total advances of the banks against goods. A greater vigilance, however, is required on the part of the banks. Hypothecation facilities, particularly known as open loan facilities, are extended only to enterprises of established reputation. In case of limited companies the charge on goods hypothecated to the bank is registered with the Registrar of Companies under Section 125 of the Companies Act and this serves as sufficient notice to the public of the bank's charge. A Letter of Hypothecation is also given to the bank.

The verification of stock is a difficult job in case of hypothecated goods. It can be only a rough and ready method. Therefore, in advances of this nature the banks have to trust the borrowers to a large extent and depend on the books maintained and the stock statements submitted by them. Local enquiries may be made to find out if the statements made by the borrowers are accurate. A strict valuation as in the case of pledge is not practicable in case of hypothecation inventory since the stocks change very frequently. The average value is generally taken for any particular variety. Prices as recorded in the books of the borrower, after a rough verification, are accepted for purposes of valuation. Stock reports are submitted according to circumstances, *i.e.*, daily, weekly or fortnightly, and verified by the godown keeper and the inspecting staff. Care is, however, taken to see that no record is created to the effect that the stocks have been checked and verified to the satisfaction of the bank because the possession remains entirely with the borrower.

In the case of hypothecation of inventory some special precautions are taken to safeguard the interest of the bank. The bank's sign-board or name-plate is displayed prominently on the premises to serve as a notice to the public about the bank's charge on the stocks. Wherever the volume of business justifies it, a chowkidar with bank's uniform and badge is stationed at the premises. If the display of sign-board is waived, as is done in special cases, the advance is looked upon as more or less an unsecured one. Inspection of stocks is done more frequently than in the case of pledges, so as to keep the bank in close touch with the borrower and his stock.

With regard to hypothecation, besides the Demand Promissory Note and the Letter of Continuity, a Letter of Hypothecation is taken.

Advances against raw material inventory. The primary requirement of an established industry is finance for the purchase of raw materials and for holding them on till they are manufactured and sold out. Banks advance against the security of raw materials whose quantity, quality and market price are easily ascertainable. They require a margin on the total value of raw materials ranging from 15% to 50% depending

upon the nature of the commodity. The finding of margin money is always a continuous problem for the industrialists. In most cases the industrialists purchase raw materials on credit extending over a period which ranges from one to three months. They, therefore, may find it possible to avail of bank finances against a pledge or hypothecation of such raw materials and meet their trade obligations from time to time.

In agri-based industries it is found economical to buy a year's requirement of raw material at the time of season to take advantage of lower prices. But such annual purchases are limited to a large extent by the margin money available with them. There is also a risk of fluctuation in prices which imposes a limit on the purchase of raw materials. Inventory of raw material is built up only for a period of three to six months. The business undertakings usually ask for a clean advance. Banks may consider favourably such requests as otherwise they may lose the secured business. However, they have their own limitations in this regard because any clean accommodation given has the effect of giving back to the borrower the margin that is usually required on secured accommodation. Clean advances usually do not exceed 50 per cent of the total margin that is provided by the borrower to the banks on secured advances.

The bulk of finance in agricultural-based industries is against the pledge of agricultural produce. As the security under pledge loans is in the possession of the bank, the stipulated margin is generally lower than advances against hypothecated stocks. The rate of interest is also generally lower by $\frac{1}{2}$ to 1%. This being so, every borrower prefers to avail of advances against pledge of goods as far as possible that would result in a saving in interest charges and also a saving in working finance. Banks also prefer to advance against storage of raw materials to last only for a period of three to six months because of the possible risks of fluctuations in prices and deterioration in quality of goods.

Advances against industrial raw material present much more complicated problems compared to advances against agricultural produce undergoing some industrial process or other. Agricultural produce is mostly seasonal while raw materials used in an industry are generally obtainable throughout the year. *Secondly*, varieties under agricultural produce are not so numerous as those relating to industrial raw materials. *Thirdly*, the industrial raw materials undergo several processes of manufacture with the result that those manufactured by a particular industry become raw materials for another and this process goes on from one industry to another until the manufactured goods get into the hands of the ultimate consumer. *Fourthly*, even agricultural produce after undergoing some industrial processes becomes a raw material in certain industries, specially those relating to chemical and allied industries.

The question of advances against industrial raw materials has recently assumed greater importance particularly on account of the fact that industrial raw materials take a long time to come as finished products unlike agricultural produce. For example, paddy and cotton may take only a few days for being processed into rice and yarn, while iron and steel take several weeks and sometimes even months for being turned into hardware or other industrial components. The greater the fineness of the finished product, the larger is the time taken for processing it. Advancing against industrial raw materials under storage becomes a difficult problem because of the number of varieties of items. Under such circumstances, it is usually for the bank to ask for related invoices so as to ascertain the value of raw materials, the date of purchase and their market value. Some raw materials may not be easily available in the market and may have scarcity value. Market value is difficult to ascertain in such cases.

Advances against work-in-process inventory. While the question of pledging raw materials and obtaining bank finances against their security is a single one, hypothecation of raw materials which are in process of manufacture has always been a very complicated affair. The goods in process may have their value depending upon the state of production. The offer of such goods-in-process as security to banks usually creates difficulties for banks because the quantity is not ascertainable with any amount of exactitude nor can the value be assessed correctly because of various processes in which these materials go through. In such cases the only method of verification of stocks available to bank is to depend upon the statements of the borrower for the correctness of the quantity and value of goods in process. This may be an unsatisfactory way from the banker's point of view and at the same time the industrial undertaking may find that its stocks which are accepted as security as raw materials are not valued properly by the bank, more specially because such goods are in the process of becoming of much higher value than the raw materials. Many banks take a fairly liberal view of the matter, particularly in the case of long and established customers and a certain proportion of advance may be allowed against hypothecation of such goods-in-process.

The appraisal of inventory value of processed goods also is a much more difficult problem. During the processing period the value may be increasing from day to day and the industrialists may be requiring more and more finances progressively. Materials under process cannot be pledged to the bank. The only way out is to hypothecate them and it may not be possible to obtain from the borrowers periodical statement of the value of these materials nor is it possible to conduct inspection of such materials. Thus the advance against such goods-in-process inventory forms a small proportion.

Where stocks are thus hypothecated, the statement of such stocks submitted by borrowers has to be taken with the utmost confidence. The hypothecation of stocks by a joint stock company is required to be registered in the books of Registrar of Companies and so other creditors are put on notice of this charge. This is a safeguard against any possible claims on the stocks by other creditors. Another safety factor lies in the fact that this industrial advance is against the continuous manufacturing process which is not affected by seasonal demands. It is possible to judge the progress of the undertaking by the periodical statements submitted by it. Verifications of the progress of production is possible by asking monthly statements of production and trading account. Essentially the ability of an industrial undertaking to manufacture an item and sell it out is much more valuable than the actual security offered to the bank. The character and integrity of management, and the financial standing and profitability of the undertaking assume a much larger importance than the commodities which are offered as security.

Advances against finished goods inventory. Finished goods are despatched to the consuming centres immediately as they are ready and not usually stored for a long time. Even if any storage is necessitated by market conditions, it soon becomes evident that increased production is not healthy and a stage may ultimately reach when production itself may have to be reduced considerably, if not stopped entirely. In such a case banks do not consider it safe to extend finances against finished goods. But banks often extend required help to tide over temporary difficulties. While raw materials can easily be sold out in case of emergency, finished goods are not so easily saleable because of their restricted marketability. This being so, banks ask for a higher margin and the industrialists to that extent may find it embarrassing to retain finished goods for a longer period.

Valuation of manufactured goods is a complicated problem. Once the raw material is converted into a finished product, its value increases correspondingly but its marketability may decrease. That is why bankers demand higher margins in the case of finished goods. For instance, if margin for advance against cotton is 25%, it is 30% against yarn, 40% against plain cloth and 50% against coloured fabrics. Great care has to be taken by the banker to see that the goods which are offered as security are of standard quality and easily saleable.

Advances against manufactured goods are made continuously without any seasonal adjustments as in the case of produce loans. Limits once sanctioned are renewed with suitable modifications from year to year so long as the business runs smoothly. Goods must, of course, get cleared from time to time and fresh goods lodged. On account of these frequent fluctuations in stock, the drawing limit of the borrower varies from time to time.

A separate book for working out these limits is maintained and the advance is made usually by way of cash credit.

Often manufacturers allow facilities to their dealers acting both as bankers and as warehousemen. Special orders of wholesale dealers are executed by the manufacturers with suitable facilities for payment. Deliveries are spread over a fairly long period thereby giving an opportunity for selling out the goods. After the stipulated period, payment is insisted upon and, if they are not able to sell out, dealers arrange with their bankers for advances against goods lying in the possession of the manufacturers. These goods are held over for a fairly long period pending instructions about despatch to various destinations. In such cases, at the request of the dealers, the manufacturers issue certificates to the effect that specified goods are held on behalf of the bank and will be delivered only to their order. In other words, the manufacturers in such cases are in the position of warehousemen only. The advantage to the dealer is that he is saved transport, godown and other incidental charges. This scheme also suits the banker as he is saved the trouble of actually taking delivery of the goods and storing them and in the event of a forced realisation, the manufacturers themselves may be helpful to the banker than other dealers in the line for purposes of sale. Therefore, this type of business is readily taken up by banks.

2. INVENTORY AND BANK CREDIT

An analytical study¹ reveals the extent to which the quantum of bank credit made available to processing and manufacturing industries in India during the 16 years period upto 1965-66 met their requirements for working capital purposes. The reliance of these industries on bank credit, as compared to other sources of finance, considerably increased during this period. The data used in this study relate to company finance statistics of the non-government medium and large public limited companies in the processing and manufacturing industrial sector compiled by the Reserve Bank of India from 1950-51 to 1965-66. It may be noted that data for this period are not available on a continuous basis for the same number of companies, but relate to three periods, viz., from 1950-51 to 1955-56 (Period I), 1955-56 to 1960-61 (Period II) and 1960-61 to 1965-66 (Period III). Analysis of the data has, therefore, been made separately for each of these series of years. The processing and manufacturing units, covered by the study, numbered 460 out of the total of 750 concerns for Period I, 640 out of 1,001 for Period II, and 910 out of 1,333 for Period III.

¹ "Working Capital Requirements and Availability of Bank Credit" by Nalini Ambegaokar, *Reserve Bank of India Bulletin*, October 1969.

Determination of norm for the size of inventories. In an assessment of the trend and magnitude of inventories in relation to sales or output and of bank credit in relation to the requirements for financing working capital or inventories, the important questions that arise are whether it is possible to determine (i) the size of inventories and (ii) the volume of bank credit required by the industry. In other words, the questions would be whether the size of the inventories is excessive in relation to sales and output and whether the volume of bank credit is adequate for financing the working capital (mainly the inventory) requirements. Both these exercises are faced with several difficulties.

The study is confined to explaining the relationships between the bank credit and inventories, the relative rate of growth in both and the comparative use of different sources of funds (bank credit and others) in financing the working capital requirements.

Behaviour of the inventory ratios. Inventory ratios have been worked out for the Indian processing and manufacturing industries, in aggregate as well as in groups and also for a few individual industries, in terms of value of stocks and output. The main feature of the inventory-output ratio has been a declining trend moving from 37.5 per cent in 1950-51 to around 30 per cent in 1963-64 and hovering around that level thereafter. Thus, the movements in the ratio were due to the fact that the pace of increase in output was faster than that in inventories. This could be taken as an indication of the effort by the industries to keep down the level of inventories in relation to output. This was the position for manufacturing industries in aggregate.

Availability of bank credit. Bank credit, though an important source, is not the only source of financing inventories. Bank credit, however, is a significant factor in influencing the inventory build-up by the processing and manufacturing industries in India. But it could not definitely be said that the whole of the increase in bank credit made available to these industries was necessarily used to finance inventories. In an economy where the capital market is neither well-developed nor active, the conditions are not suitable for an inflow of foreign capital and where a growing proportion of household savings is mobilised by banks, the corporate sector has naturally to depend on banks for its requirements. Making an attempt in the study to show how far an increase in bank credit has influenced inventory expansion of these industries, the author finds that the proportion of the rise in bank borrowing to the rise in their total borrowing increased from 39 per cent in Period I to 59 per cent in Period II and 68 per cent in Period III. Further, the rate of rise in bank credit exceeded the inventory growth in each of the three periods. The combined rate of growth in inventories in Period I was 4.18 per cent while that

in bank credit was 5·76 per cent as against 10·13 per cent rate of growth in inventories and 14·32 per cent in bank credit in Period III (Table 1). The growing extent of the bank credit expansion can also be examined in the context of the rise in sales and output. It may be noted from Table 1 that the rate of rise in bank credit, as compared with inventories, sales and output, exceeds that of inventories, sales as well as output.

The increasing reliance on bank credit for financing the various items of working capital requirements can be noted from Table 2. Of the

Table 1
Annual Rate of Rise (Compound)
(All groups)

(Per cent)

Period	Bank credit	Inventories	Sales	Output
Period I	5·76	4·18	7·63	7·34
Period II	18·08	10·69	10·68	11·23
Period III	14·32	10·13	10·83	10·54

Table 2
Selected Items of Sources & Uses
(All Groups)

(In crores of rupees)

	Period I	Period II	Period III
1. Short-term Sources			
(a) Bank credit	70	292	540
(b) Trade credit	23	162	315
2. Requirements of working capital (total) ¹ of which	99	331	672
(a) Inventories	53	243	430
(b) Receivables	29	91	256
3. Total (a+b)	82	334	686
1 (a) as % of 1	32·9	55·5	58·3
1 (a) as % of 2	23·2	48·9	46·9
1 (b) as % of 2	47·5	39·3	33·5
1 as % of 3	85·4	87·4	78·7
1 as % of 2	70·7	88·2	80·4

¹ Including items not shown here (e.g., cash and bank balances and short-term investment).

total rise in working capital during Period III, the proportion that was financed by bank credit was 47 per cent while that in respect of trade credit was 33 per cent. This was in contrast to the position during Period I when the dependence on bank credit was only to the extent of 23 per cent of the growth in working capital and the increased use of trade credit was at the rate of 47 per cent. This analysis highlights the increasing and greater reliance of these industries on bank credit than on other sources of funds for financing their working capital requirements.

The main findings of the study can be summarised as follows :

1. Indian processing and manufacturing industries have increasingly relied on bank credit over the period of 16 years covered by the Study for financing a large part of their working capital requirements. Their relative dependence on other sources of finance gradually diminished.
2. The flow of bank credit, while covering fully the inventory build-up in case of some industries, was not adequate for other industries, particularly those using raw material in short supply.
3. The most important fact revealed by the analysis is the growing dependence of some industries on bank credit which appears to be out of proportion with the increase in their output.

Regulation of inventory holding and bank finance. Regulation of inventory holding by controlling bank finance has assumed special importance in our country, particularly in the recent past. There has been shortage of essential inputs, transport bottlenecks, poor industrial relations, fluctuations in agricultural output encouraging speculative building-up of inventory. Excessive inventory accumulation also results from inefficient management control. Heavy inventory accumulation develops an imbalance in the economy leading to profiteering, under-utilisation of capacity, higher cost of production and eventually the high level of prices. It is necessary that bank finance should be judiciously allocated to avoid heavy piling up of inventory.

In India, commercial banks meet on an average 60 per cent of inventory finance. The percentage is as high as 70 in case of major industries like cotton textiles, jute textiles, sugar and iron and steel. If the bank finance is left unregulated, some of the units who have greater access to bank finance would indulge in hoarding and such other anti-social activities. It is necessary to emphasise that neither the Reserve Bank nor the commercial banks have any control over the end-use of credit. Normally there is a tendency on the part of the borrower holding excessive stocks to conceal its total value by lodging a part thereof in the godown under the control of the bank, by understating the physical quantity of goods and by under-valuation of the stocks. *Secondly*, there is the problem of avoid-

ing double financing. Raising funds from two or more sources against the same security has been quite common. *Thirdly*, there can be no inventory norms applicable to all industrial units at all places and all times. The norms laid down by the Tandon Study Group have to be viewed as general guidelines rather than as rigid norms. *Fourthly*, effective credit regulation needs a reliable information system. The lending banker has to base his decision on various factors to determine the exact requirements of the borrower so that the resources may be judiciously deployed. Many of the problems relating to diversion of credit and overcredit can be avoided if banks succeed in collecting accurate and complete data on the financial operations of the borrower in time. *Finally*, the success of credit control measures depends, in the ultimate analysis, on the spirit with which they are enforced at the grass root level. Credit policies are implemented through the network of branches spread all over the country and the control measures become ineffective because of the absence of discipline and experience on the part of branch managers. While the commercial banks have been excessively preoccupied with geographical expansion, need for manpower development has not attracted their attention. As a result, the commercial banks did not have adequate expertise to appraise the credit requirements of their constituents.

3. CREDIT AUTHORISATION SCHEME

Since November 1965, a Credit Authorisation Scheme has been in operation as part of the Reserve Bank's credit policy. The Scheme was adopted to regulate the end-use of credit. In terms of this Scheme, all scheduled commercial banks are required to obtain the Reserve Bank's prior authorisation before sanctioning any fresh credit limit (including commercial bill discounts but excluding letters of credit and guarantee limits) of Rs 1 crore or more to any single party or any limit that would take the total limit enjoyed by such party from the entire banking system (including cooperative sector) to Rs 1 crore or more, on secured and/or unsecured basis. The minimum limit was raised in November 1975 from Rs 1 crore to Rs 2 crores for borrowers in the private sector.

The applications under this Scheme are rejected on account of the following reasons: (i) gross under-utilisation of the existing limits; (ii) cornering or stock-piling of raw materials; (iii) concentration of bank advances in the hands of a single party; (iv) excessive reliance on bank borrowings, the companies' own resources having been diverted for inter-corporate investments/lending; (v) advances sought from a commercial bank to avoid the financial discipline imposed by the IDBI and other term financing institutions; (vi) advances which would indirectly defeat the purpose of selective credit control.

With the tightening of credit control measures in 1974-75, great care was taken by the Reserve Bank in screening of the applications received from banks for credit authorisation. In the result, aggregate limits approved during 1974-75 were lower than in the preceding year. Data available in regard to the operation of the Scheme during 1975-76 reflects the degree of flexibility imparted to it by the Reserve Bank in its credit policy. A greater proportion of the applications received was authorised during 1975-76 as compared to the preceding year. While the number of applications received for authorisation increased from 1058 in 1974-75 to 1181 in 1975-76, the number of applications authorised rose from 528 to 716. The amount applied for and authorised rose substantially from Rs 1022 crores to Rs 2646 crores and from Rs 429 crores to Rs 1963 crores respectively, over the year. The sharp rise in the amount of credit authorisation was largely accounted for by the public sector undertakings.

At the end of June 1976, parties covered under the Scheme declined to 851 from 1786 a year ago but total limits in force rose over the year from Rs 7253 crores to Rs 8476 crores. The fall in the number of parties is attributable to the exclusion of the relatively smaller borrowers from the purview of the Scheme. The increase in limits was entirely due to public sector undertakings.

The Credit Authorisation Scheme has been found useful not only as an instrument of overall credit control but also as a method of regulating the sectoral flow of credit.

4. FINDINGS OF THE DEHEJIA COMMITTEE¹

The National Credit Council (now defunct) constituted in October 1968 a Study Group under the chairmanship of V. T. Dehejia to examine the subject "the extent to which credit needs of industry and trade are likely to be inflated" and how such trends could be checked. The Group submitted its report in September 1969. Since the bulk of bank credit was short-term, the Group's enquiry was primarily concerned with the 'inflation' of short-term bank credit.

The credit needs of industry or trade may be considered as inflated (i) if, in a period of years, the rise in short-term credit is found to be substantially higher than the growth in the value of industrial production; (ii) if the rise in short-term credit is appreciably higher than the increase in inventories with industry and trade; (iii) if there is a diversion of short-term bank borrowing for building up fixed assets or other non-current assets such as loans and investment; (iv) if there is double or multiple

¹ *Reserve Bank of India Bulletin*, November 1969, pp. 1792-1798.

financing of the same stock; and (v) if the period of credit is unduly lengthened.

The Group found that the bank credit during the period from 1960-61 to 1966-67 expanded at a higher rate than the rise in industrial output. This finding was supported by the data on inventories in relation to short-term bank credit. Between 1961-62 and 1966-67, rise in the value of inventories with industry was 80 per cent while the rise in short-term bank credit was as much as 130 per cent. The ratio of short-term bank borrowings to inventories went up from 40 per cent in 1961-62 to 52 per cent in 1966-67. A similar analysis in respect of individual industries showed that some industries, particularly in the traditional group, obtained credit from banks over and above the rise in production. The Group, therefore, came to the conclusion that in the absence of specific restraints, there was tendency on the part of the industry generally to avail itself of short-term credit from banks in excess of the amount based on the growth in production and/or inventories in value terms.

Fixing of credit limits by banks. The basis on which banks fix credit limits had an important bearing on the size of bank credit in relation to the requirements of the individual borrowers. For fixing credit limits, banks generally took into account several features of the working of the loanee concerns, such as production, sales, inventory levels, past utilisation, etc. The prevalent practices of the banks in this regard were so varied that they were unlikely to prevent the emergence of excess demand for credit from certain borrowers. By and large, the scheduled banks were inclined to relate their credit limits to the security offered by their constituents. But many did not appear to make any attempt to assess the overall financial position of the borrowers through cash flow analysis and in the light of this study fixed their credit limits.

Valuation of stocks and margin requirements. Banks did not generally appear to follow a uniform method of valuation of stocks. The usual method for indigenous goods was based on 'cost' or 'market value' whichever was lower and for imported goods on landed cost. This meant divergence in practice as regards the prescription of margins by banks. In the opinion of the Group, the varying practices could not be said to constitute an important factor in the emergence of excess credit.

Divergence of short-term credit. A study of 255 companies over the period from 1961-62 to 1966-67 showed a deterioration in their current ratio and the increase in short-term liabilities was utilised for financing the gap between long-term assets and long-term liabilities. One-fifth of the gross fixed assets formation of these companies was financed by expansion in short-term liabilities including bank loans.

Lending system. The Group considered that the lending system, as was prevalent in Indian banking, would appear to have assisted certain units to increase their reliance on short-term debt. The working capital advances of banks were granted by way of cash credit limits which were only technically repayable on demand. The system was found convenient in view of the emphasis placed by banks on the security aspect. These short-term advances, though secured by current assets, were not necessarily utilised for short-term purposes. The result was that credit advances no longer remained short-term or self-liquidating. The possibility of heavy reliance on bank credit by industry arose mainly out of the way in which the system of cash credit, accounting for about 70 per cent of total bank credit, had been operated.

Suggestions for change. The Group was of the opinion that unless measures were taken to check the tendency for diversion of bank credit or acquiring long-term assets, it might assume wider dimensions in the next few years. The Group made the following suggestions for checking this tendency :

1. Appraisal of credit applications should be made with reference to the total financial situation, existing and projected, as shown by cash flow analysis and forecasts submitted by borrowers. This would help a diagnosis of the extent to which current liabilities had been put to non-current use and the manner in which liabilities and assets of borrowers were likely to move over a period of time.

2. Outstandings in the existing as well as future cash credit amounts should be distinct as between (i) the 'hard core' which would represent the minimum level of raw materials, finished goods and stores which the industry was required to hold for maintaining a given level of production, and (ii) the strictly short-term component which would be the fluctuating part of the account. The latter part of the account would represent the requirement of funds for temporary purposes, *i.e.*, short-term increase in inventories, tax, dividend and bonus payments, etc., the borrowing being adjusted in a short period out of sales. The hard core element in the cash credit borrowing could be segregated and put on a formal term-loan basis and subjected to repayment schedule particularly where the company's debt paying capacity was good. But where the borrower's financial position was not good or size of the hard core was so large that repayment could not be expected within 7 to 10 years, it would be difficult for the banks to continue to carry these liabilities over a long period of time. The possible solutions would be the bringing in of long-term deposits, unsecured loans by the promoters, additional issue of equity or preference capital, a debenture issue with a long-term maturity. Where the hard core

was to be placed on a formal term loan basis, the proposal should be subject to a detailed appraisal. The documents should contain covenants in regard to the end-use of the loan, maintenance of minimum financial ratios, repayment applications, restriction on investments in shares and debentures.

3. The Group suggested that as a rule major banks should consider entering into an agreement that they would not accommodate a customer who was banking with any other bank except with the prior intimation to the lending bank. Where credit requirements of the borrowers were very large and could not be made out of the resources of one bank, the Group recommended the adoption of "consortia" arrangement.

4. Where credit facilities were granted against receivables either by way of documents against acceptance of bills or drawing against book debts, the purchaser was also in a position to obtain bank credit by way of hypothecation pledge of the stocks which had not been paid for. Such double or multiple financing could be eliminated if at the time of assessment of credit requirements of the borrower due account was taken of the credit received on purchases.

5. With a view to bringing undue elongation of the period of trade credit and the tying up of resources of banks for unproductive purposes, the Group considered that the period of trade credit should not normally exceed 60 days and in special circumstances upto 90 days. The undue delay in the settlement of bills by Government departments could be discouraged by stipulating that the latter should pay interest on bills if they were not paid within 90 days after their receipt (accompanied by inspection notes).

6. To check the extension of extra bank credit the Group suggested that a levy of a commitment charge on unutilised limits coupled with, if necessary, a minimum interest charge could be considered. From the point of view of administrative convenience, at the initial stages, limits sanctioned upto Rs 10 lakhs might be exempted. The commitment levy might be progressively raised with the size of unutilised limits.

7. With regard to inventory control the Group considered that as an integral part of restraining demand for bank credit for industry, adequate attention should be paid to the question of adequacy or otherwise of inventories held by various industries and the scope for minimising the stocks required by industry.

8. The Group recommended that commercial banks, industry and trade should try to initiate and develop the practice of issuing usance bills as this would not only impose financial discipline on the purchaser but also help supplier or producer to plan his financial commitments in a

realistic manner. An adequate growth in the volume of usance bills would facilitate the development of a genuine bill market in India.

The Study Group considered that a certain measure of financial discipline implicit in the above suggestions would also ultimately help the corporate and other borrowers in formulating financial plans, regulating production on a more rational basis and effecting economy in the demand for bank credit. As regards banks, a periodical release of part of the resources at present locked up in 'roll over' cash credit/overdraft to industry would enable them to meet further demand of priority sectors and to diversify their loan transactions. This would also increase the scope for mobilisation of deposits.

5. NEW BILL MARKET

As examined in the earlier section, the Dahejia Committee on Finance for Trade and Industry, in its report to the National Credit Council (now defunct) in September 1969, exposed the abuses of cash credit system. The banks started thinking in terms of the financial discipline that could be observed by the traditional borrowers. These matters became even more urgent and relevant when the banks realised that hundreds of new borrowers from the priority sectors looked to banks for their financial requirements. The Reserve Bank also became cautious to ascertain the true and genuine credit needs for production purposes. The search was further intensified as the inadequacy of the selective credit controls became increasingly apparent during 1969-70 season. These developments explained the genesis of the recommendations made by a Study Group, set up by the Reserve Bank in February 1970, to start a new bill market scheme.

The Study Group went into questions relating to enlarging the use of bill of exchange as an instrument for providing credit and the creation of a bill market in India. The Group submitted its report in June 1970. It recommended that the Reserve Bank should take steps towards creation of a bill market in India by encouraging the use of bill of exchange as an instrument of credit. The creation of a genuine bill market would impart flexibility to the capital market, even out liquidity within the banking system and enable the Reserve Bank to exercise more effective control over the money market.

The Study Group considered the matter from the following angles :

- (i) Whether in the existing and prospective context, there was any need for taking steps to enlarge the use of bill of exchange as an instrument of credit and for the creation of a bill market in India ?

- (ii) If so, what types of transactions lend themselves to finance by means of bill of exchange, and what steps would be necessary to see that such transactions were financed ?
- (iii) What institutional set-up would be necessary for acceptance and discount of bills of exchange ?

Enlarging the use of bill of exchange. The question of enlarging the use of bill of exchange for providing credit was examined by the Study Group from the points of view of: (i) the Reserve Bank; (ii) lending banker; (iii) borrower; and (iv) the other institutions.

Reserve Bank. Though the Reserve Bank of India Act envisaged the purchase/discount of bills of exchange by the Bank as a method of providing refinance to the scheduled banks, the provisions remained dormant except that a pseudo bill market scheme was introduced in January 1952. Under this scheme the Reserve Bank provided refinance to the eligible scheduled banks against usance promissory notes specifically created by their borrowers by converting their borrowings into usance promissory notes in terms of the Bill Market Scheme. It was in effect an accommodation scheme on the basis of improvised bills.¹ The banks, instead of dealing with one another horizontally, often preferred to borrow from the Reserve Bank to meet their requirements of funds. Consequently, the Reserve Bank became the 'lender of the first resort' rather than the 'lender of the last resort'. Thus, while there might be surplus funds in the banking system as a whole, the Reserve Bank was called upon to provide funds to the banks and the monetary base was increased more than was warranted by the economy's needs at any one point of time.

This state of affairs could be corrected to a large extent with the progressive device of the bill of exchange as an instrument of credit. This would impart flexibility to the money market by evening out liquidity within the banking system and enable the Reserve Bank to exercise more effective control over the money market.

There was another advantage from the point of view of the Reserve Bank. Bills rediscounted by it could constitute eligible assets for note issue and this would keep deficit financing down at the same time.

The evolution of bill market would also make the Bank Rate variations by the Reserve Bank a very effective weapon of monetary control as the impact of any such changes could be transmitted through this sensitive market to the rest of the banking system. With the introduction of a bill discounting scheme, the Reserve Bank might give consideration

¹ Report of the Banking Commission, 1972, p. 20.

to the problem of adapting its system to the requirements of a bill market consistent with its monetary policy objectives.

Lending banker. As the main method of providing credit was by way of cash credit limits, and these limits were generally sanctioned with an accent on security, there remained the risk of excessive limits being granted in relation to a specified purpose. Further, there was no specific date of repayment of the advance. The assets of a bank representing cash credit/advances could not be readily shifted to another bank in case a lending bank wanted liquid funds urgently. Refinance could be obtained against such advances from the Reserve Bank but advances had first to be converted into usance bills for the purpose. On the other hand, if credit was provided by discounting bills, the amount as also the date of repayment would be definite, and it would be possible to meet the requirements of the cash easily by rediscounting the bills.

Borrower. From the point of view of the short-term borrower, a high class bill of exchange could normally be rediscounted at rates lower than those charged by banks on advances. Further, this would impose financial discipline on the purchasers and help the suppliers to plan their financial commitments in a realistic manner.

Other institutions. The creation of bill market would also enable other financial institutions and trading bodies to invest their surplus funds profitably. Some of the large borrowers were financed by more than one institution on a participation basis, either because the amount involved was very large or because the amount was beyond what an institution would like to risk on a single borrower. These participation arrangements could create problems to the borrowers, in the sense that they had to go to a number of institutions and conduct parallel negotiations. If it were possible to switch over to a system of bills where a single institution could lend out the entire requirements by way of bills of appropriate maturities, it should be possible for the institution to enable the other institutions to participate in the finance in an indirect way of purchasing of some of these bills of exchange and at the same time avoiding difficulties inherent in a participation arrangement.

For these reasons, the Study Group concluded that it would be advantageous to take steps to enlarge the use of bill of exchange and to create a bill market in the country.

Transactions lending themselves to finance by the bills. The Group did not envisage to replace the existing system of lending by way of cash credit entirely by the proposed system of lending by bills of exchange. On the other hand, the Group considered that a system should

be evolved which could combine the advantages of cash credit system and a system based on bill of exchange.

The Group emphasised that the bill of exchange should be different from accommodation paper. It was, therefore, necessary to limit the proposed bill market scheme only to genuine trade bills. Further, considering the fact that the acceptance facilities would be given only to first class parties and after the bankers had satisfied themselves as to their ability to meet, on due dates, the payment of the bills, the Group considered that the risk, if any, would be very small. It recommended that the bill of exchange should bear the signature of a licensed scheduled bank as an acceptor. Only such bills should be eligible for rediscount by the Reserve Bank. Bills should normally be of a usance not exceeding 90 days but might in exceptional cases have a usance upto 120 days.

From a long-term point of view, the Group stressed the need for exploring the possibility of setting up a credit investigation agency to which the banks and other institutions could turn up for up-to-date credit information on various parties. The Group believed that in course of time sufficient bills of exchange, arising out of the sale of goods and commodities, would be available to feed the bill market. The bills arising out of import and export of goods or those which were eligible for rediscount with the IDBI, but were not rediscounted with that Bank, might be additionally available to the market.

Certain impediments likely to stand in the way of creating a bill market were also examined by the Study Group. *First*, there was bound to be some resistance on the part of borrowers to borrow by way of discount of bills rather than against book debts. *Secondly*, there would be resistance on the part of buyers of goods to accept the bills of exchange drawn on them by the sellers or to ask their bankers to accept such bills on their behalf. *Thirdly*, the question of cost of stamp duty on the usance bills also posed a problem. But the Group was satisfied that the proposed reform was worthwhile and that ways and means should be found for overcoming the difficulties which might arise rather than abandoning the Scheme itself. It suggested that the banks or the Indian Banks Association should educate their borrowers and try to persuade them to avail themselves of finance necessary for sale of goods on credit by way of discount of bills of exchange. In case the persuasion did not yield results, the Indian Banks Association might come to an agreement that they would charge higher rates of interest or stipulate stiff measures to discourage borrowing against book debts. Should these efforts also fail, the Reserve Bank might consider issuing appropriate advice or directive to the scheduled commercial banks in order to discourage them from lending against book debts.

The Scheme, it was recommended, should exclude bills of exchange arising out of sale of such commodities as might be indicated by the Reserve Bank of India from time to time under its credit control measures. The Group also considered the issue of bringing the Government supply bills within the purview of the Scheme and recommended that Government could be induced to accept bills of exchange for the supplies made to them upto a portion of the amount due, say 75 per cent to 80 per cent, and at a stage when an inspection note for the supplies was available. The Reserve Bank might take up the matter with the Director-General of Supplies and Disposals.

Institutional set-up. The Group also considered the question of institutional set-up necessary for the purpose of accepting and discounting of bills of exchange and suggested that the bills of exchange should be accepted by licensed scheduled banks. The discounting of bills would be either by banks or by others who might be interested in short-term investments. It might not be absolutely necessary at this stage to create separate acceptance or discount houses under official auspices. However, there would be need for intermediaries who could act as a link between the sellers and purchasers of bills. This role could be taken up by bill brokers. To begin with, efforts should be concentrated to create bill market at the four main centres of the country, viz., Bombay, Calcutta, Madras and New Delhi. The existing bill market scheme (introduced in 1952) could continue for the time being but it should be gradually replaced by the new Scheme of rediscounting genuine bills.

New Scheme. The Reserve Bank accepted the main recommendations of the Study Group and introduced a new Bills Rediscounting Scheme in November 1970. The main features of the Scheme are given below :

(i) all licensed scheduled commercial banks including the public sector banks are eligible to offer bill of exchange to the Reserve Bank for rediscount;

(ii) the scheme covers only genuine trade bills which are in evidence of sales of goods;

(iii) the bill should be drawn on and accepted by the purchaser's bank and where the latter is not a licensed scheduled bank the bill should, in addition, bear the signature of a licensed scheduled bank; the bill may also be drawn on the buyer and the buyer's bank jointly and accepted by them jointly; (this condition has been waived in February 1971 when the Scheme was modified allowing rediscounting facility in cases where the bill was accepted by the buyer alone but had a legend of the seller's bank as an endorser of the bill guaranteeing its retirement on due date. It was

felt that acceptance of the buyer's bank was not practical and would be difficult to obtain);

(iv) the bill should normally be of usance not exceeding 90 days and in exceptional cases it may have usance upto 120 days provided that at the time of offering to Reserve Bank for rediscount, the bill should have maturity not exceeding 90 days;

(v) the bill should bear at least two good signatures;

(vi) the bill would exclude bills of exchange arising out of sales to such commodities as the Reserve Bank may indicate from time to time;

(vii) the rediscounting facilities for the present would be made available at the Reserve Bank's offices at Bombay, Calcutta, Madras and New Delhi; and

(viii) bills should be given in bunches in order to avoid rediscounting of a number of small bills (the amount of a single bill offered for rediscount should not be less than Rs 5,000 (now reduced to Rs 1,000) and the total value of the bills offered at a time should not be less than Rs 50,000).

The Reserve Bank has already commenced rediscounting such bills for the scheduled commercial banks. The refinance facilities under the Scheme are made available to the banks throughout the year. The outstanding amount of bills of exchange held by the Reserve Bank stood at Rs 10.4 crores in June 1971.

The scope of the Bills Rediscounting Scheme was widened during 1971-72. The Scheme was also modified during the year with a view to expanding its coverage. In July 1971, the Scheme was extended to cover bills of exchange arising out of sale of goods to Government departments and quasi-Government bodies as well as statutory corporations and Government companies provided such bills conformed to the requirements of the Scheme. In October 1971, it was decided to dispense with the actual lodgement of bills each of the face value of Rs 2 lakhs and below by the banker with the Reserve Bank and to authorise the banks to hold such bills with themselves as agents of the Reserve Bank. This decision was taken in order to avoid bills and reduce the work involved in delivering and redelivering the rediscounted bills, to and from the Reserve Bank. The minimum amount of a bill eligible for discount with the Reserve Bank was reduced from Rs 5,000 to Rs 1,000. Bills of exchange drawn and accepted by the ICICI on behalf of its purchaser constituents singly or jointly with them were also made eligible for rediscount under the Scheme in April 1972. Further, with a view to widening the scope of the Scheme, the Reserve Bank suggested to banks in appropriate cases that book debt

limits might be converted into bill limits to the extent feasible. The banks were also asked to avail of bills rediscounting facilities on an increasing scale.

Bank's recourse to this facility during 1975-76 busy season was of a lower order as compared with the preceding busy season. The peak availment was at Rs 181 crores as compared with Rs 191 crores in 1974-75 and Rs 279 crores in 1973-74.

Suggestions. The Scheme should be operated with great flexibility, without losing sight of its main objectives. It will have a much greater chance of acceptance if its potentiality and utility are properly projected. Banks and their borrowers should establish better rapport and understanding with each other with a view to creating an atmosphere of mutual confidence and trust. Banks will have to trust the borrowers and rely upon their experience and judgment with regard to the credit worthiness of their buyers who accept the bills of exchange. Approval of individual buyers may not be necessary.

Banks could act as common bankers to the buyer and seller on a selective basis without taking any additional risk. There are many marketing organisations to act as sole selling agents to a number of small and big manufacturers and buy goods from them for distribution all over the country. A bank could increase its share of new bill business by sanctioning acceptance limits to such marketing organisations and by giving discounting facilities to the manufacturers/sellers in respect of such acceptances, without taking any additional risk.

Bank should consider the sharing of credit information with other banks since agencies like acceptance and discount houses which are in operation in the UK and USA do not exist in India. Banks are usually reluctant to share credit information with others in the absence of any legislative enactment which would give necessary protection to banks who might be adversely affected by the exchange of such credit information. Therefore, it is necessary to bring forward suitable legislation which would permit the banks to share credit information freely.

Individual sub-limits within the overall limits for discounting should be flexible. For example, if the discounting limit is sanctioned with a stipulation that no individual bill should exceed Rs 5 lakhs in value, the banks should not be very rigid about these sub-limits if they are exceeded marginally as long as overall sanctioned limit is not exceeded.

In some areas, it is difficult to get bills maturing within 120 days, particularly in the case of engineering goods like plant and machinery. In order to meet the needs of their customers, the banks should consider

discounting of bills upto 180 days' maturity. Although such bills are not eligible for discounting with the Reserve Bank, they can be rediscounted in case of need with other banks or institutions or held by the bank till maturity.

Banks should be made aware of their obligation to assess the genuine needs of the borrowers and provide them with necessary finance. The new bill market scheme may bring down the demand for goods and credit to more realistic dimensions and introduce discipline for the borrowers in terms of better sales planning, better control over inventories and book debts, payment of the bills on the due dates, etc. Any curtailment of the existing facilities genuinely required by the trade and industry is likely to hamper their development and lead to serious losses in production and employment. The present pattern of financing should be changed over to the bill market on a phased basis.

Acceptance limits should be considered favourably without any margin, as in the case of bill discounting. As a security for such acceptance limits a floating charge may be created in favour of the banks on all movables, immovables and receivables, depending on the limits sanctioned.

Discounting rates should be kept at a level lower than the interest rates of cash credit or book debt facilities by at least $2\frac{1}{2}$ per cent per annum to 3 per cent per annum in cases where acceptances of buyers' banks are available and by $1\frac{1}{2}$ per cent to 2 per cent in cases where the bills are accepted by the buyers. These concessional interest rates would provide necessary incentive to the borrowers to go in for the Bill Marketing Scheme.

CONSORTIUM LENDING BY BANKS

Consortium advances involve joint finance by more than one bank to the same party against a common security. The entire security remains charged to all the financing banks for the total advance. All the participating banks have a *pari passu* charge on the security. Where the securities are not common, even if there are two or more banks involved, it is not a case of joint finance. In the case of consortium advance, usually there is a consortium leader as lead bank which receives the proposal, appraises it, arranges for documentation, recovery, etc., on behalf of all other members who share in the loan and in the securities on an agreed basis. There is an agreement setting out the terms and conditions executed between the participating banks.

The concept of consortium financing is not new in our country and quite a few consortia have been formed in recent past in the field of term lending as also in the sphere of working capital. But still multiple bank-

ing rather than consortium banking appears to be the rule in India. A study of borrowing arrangements as at the end of December 1973 of 341 large borrowers, with credit limits of Rs 1 crore and over, selected at random indicates that 145 of them borrowed from a single bank while the rest (196) borrowed from more than one bank. Among the latter, only 32 cases were on a consortium basis (16.3 per cent) and the remaining on the basis of multiple banking (83.7 per cent).

The need to have a consortium approach among banks in providing financial assistance to the borrowers was engaging the attention of the Reserve Bank for quite some time. Accordingly, a Study Group was set up in December 1973 to make recommendations, among other things, for sharing of advances to units in public and private sectors, for participation amongst banks for revival of sick units, and for better co-ordination and co-operation among banks in respect of multiple banking. The rapid expansion in industrial and trading activities and the growing requirements of public sector enterprises have resulted in large commitments for credit from individual borrowing units. It is no longer possible for one bank to meet the full credit demand of the large borrowers. Therefore, a consortium approach becomes necessary.

The report of the Study Group was submitted in 1974 and the RBI has accepted its recommendations. These recommendations have been communicated to banks suggesting that they may particularly bear in mind the following important points while sanctioning advances to large borrowers: (i) Large credit limits by a bank to any single borrower in the private or public sector in excess of 1.5 per cent of its deposits should normally be extended on a participation basis; (ii) where it is decided to finance a borrower on a consortium basis, the arrangement should normally take care of the entire financial requirements; (iii) the public sector undertakings should be permitted to deal with any bank of their choice; (iv) in the case of sick units a reliable assessment of the possibility of rehabilitation should be taken up by the banks already lending to the sick units; (v) banks then should proceed to find the financial requirements for revival along with specialised agencies.

Consortium financing is based on a joint processing appraisal of credit requirements with one of the participating banks acting as a central point of credit appraisal. Once the consortium decision is taken, the lead bank centralises the total procedural requirements, including the clearance of the lender under the Credit Authorisation Scheme. With a view to promoting consortium, the Study Group stated that the member banks should evolve a common form of credit appraisal and documentation so that the borrower is not called upon to submit details to each bank in its own form

and execute bond of pledge/charge in favour of every bank separately in its own form.

Having regard to the recommendations of the Study Group, the Reserve Bank has suggested that the banks should in due course review their existing advances in the light of the norm (no individual advance should be in excess of 1.5 per cent of the bank's deposits) and enter into participation arrangements where considered necessary. In case where the working capital requirements of a borrower are financed by a number of banks without a consortium arrangement, a proper procedure for co-ordinating among the financing banks should be evolved on the following lines: (a) periodical exchange of essential information between the financing banks; (b) review of borrower's performance through periodical inter-institutional meetings; (c) joint review of credit requirements of the borrower when the limits become due for renewal or when a substantial increase in the limits is sought or the borrower's performance shows signs of deterioration.

SUGGESTED READINGS

Sastri, D.S., *Bankers' Advances Against Goods*, 3rd ed., Bombay: Thacker & Co., Ltd., 1967.

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Banks Bridging Working Capital Gap : Tandon Study Group

The Reserve Bank of India set up a Study Group to frame guidelines for follow up of bank credit in July 1974 under the chairmanship of Mr P. L. Tandon, the then Chairman of Punjab National Bank. The terms of reference of the Group were :

- (i) to suggest guidelines for commercial banks to follow up and supervise credit from the point of view of ensuring proper end-use of funds and keeping a watch on the safety of the advances and to suggest the type of operational data and other information that may be obtained by the banks periodically from such borrowers and by the Reserve Bank from the lending banks;
- (ii) to make recommendations for obtaining periodical forecasts from borrowers of (a) business/production plans, and (b) credit needs;
- (iii) to make suggestions for prescribing inventory norms for different industries both in the private and public sectors and indicate the broad criteria for deviating from these norms;
- (iv) to suggest criteria regarding satisfactory capital structure and sound financial basis in relation to borrowings;
- (v) to make recommendations regarding the sources for financing the minimum working capital requirements;
- (vi) to make recommendations as to whether the existing pattern of financing working capital requirements by cash credit/overdrafts system, etc., requires to be modified and, if so, to suggest suitable modifications; and
- (vii) to make recommendations on any other related matter as the Group may consider necessary to the subject of inquiry or on

any other allied matter which may be specifically referred to it by the Reserve Bank of India.

The Study Group submitted its report to the RBI in August 1975. The summary of the Group's main observations and recommendations is given below :

(1) *Need for change.* Nationalisation of the major commercial banks in July 1969 called for a new policy and the banking system was asked to adopt a new approach as a credit agency, based on development and potential rather than on security only, to assist the weaker sectors of the society, and to lend to the public sector also. Advances were sanctioned in the early years against the security of stocks charged to the banks. With the growth of industrialisation, the same system of bank lending continued with minor changes, the general pattern of lending to industry being security-cum-guarantee advances. The security-guarantee system tended to favour borrowers with strong financial resources, irrespective of their economic functioning. This system aided concentration of economic power.

In the last six or seven years, industrial production has risen at a slow pace but the call on bank credit, essentially for maintaining inventories at the same level, has gone up with increasing prices. If the growth process is resumed then the volume of inventory required to maintain a higher level of production will increase and correspondingly the demand for bank credit. The banks will thus have to operate in a context in which demand for bank credit for growth requirements will be large.

(2) *Cash credit system and financial indiscipline.* The problem of potential imbalance in demand for and supply of funds is accentuated by the manner in which the banks extend credit under the present cash credit system of lending. Under this system the level of advances in a bank is determined not by how much a banker can lend at a particular point of time but by the borrower's decision to borrow at that time. This makes credit planning difficult in banks. Further, cash credit advances are repayable on demand only in name. To the extent that outstandings in the cash credit account never fall below a certain level during the course of a year, there is an element of what is called a 'hard-core' borrowing which is in reality a quasi-permanent lock up of bank funds in the borrower's business. Time is now opportune to review the existing system and effect changes in such a way that under the new system the borrower would plan his credit needs and the banker would also be able to plan having known the borrower's credit requirements.

(3) *Norms for inventories and accounts receivables.* There is no uniformity in approach among Banks in assessing working capital requirements especi-

ally with regard to inventories. If bank credit is to be viewed as a tool of resource allocation in the economy, one cannot get away from the problem of defining reasonable levels of inventories and receivables in each industry and hence the need for norms for these current assets. Norms have been suggested for 15 major industries, taking into account, among other things, company finance studies made by the Reserve Bank of India, process period in the different industries, discussions with the industry experts and feedback received on the Interim Report of the Group. The norms proposed represent the maximum levels for holding inventory and receivables in each industry. If, however, a borrower has managed with less in the past, he should continue to do so.

Working capital requirements of the heavy engineering sector have not been covered under the norms laid down by the Group since the banking system may find it difficult to cope with the industry's demand for funds in its entirety.

It has been emphasised that norms cannot be absolute or rigid. Deviations from norms may be necessary under certain circumstances, e.g., power cuts, strikes, transport delays, bunched receipt of raw materials, etc. However, delayed payments by Government agencies and big units in the private sector cannot be treated as circumstances warranting deviations and the matter should be tackled at the sources rather than throwing upon the banking system the burden of providing additional credit. Deviations should be for known specific circumstances and situations and allowed for agreed periods which should be relatively short.

Norms should apply to all industrial borrowers, including small-scale industries, with aggregate limits from the banking system in excess of Rs 10 lakhs and extended to smaller borrowers progressively as early as possible. In case of industries not covered by norms at present, the purpose and spirit behind norms should be kept in mind for extending credit facilities. The list of industries covered by norms should be extended with experience. Norms should be kept under constant review. The principles should be uniform for all like industries, both in the private and public sectors.

The process of adjustment of inventories and receivables should be completed in about two months, other things being equal. In the event of default, as a first step the bank should charge a higher rate of interest. But even charging of a higher rate of interest should not give a permanent immunity to the customer from conforming to norms and some further action should be considered.

(4) *Working capital gap and bank credit.* The Group has identified working capital gap, viz., the borrower's requirements of funds to carry current assets (based on norms), less those financed out of his other cur-

rent liabilities. This gap could be bridged partly from his owned funds and long-term borrowings and partly by bank borrowings. The maximum permissible limit of bank borrowings could be worked out in three ways (see Appendix I). In Method I, the borrower will have to contribute a minimum of 25 per cent of the working capital from long-term funds, i.e., own funds and term borrowing; this will give a minimum current ratio of 1 : 1. In Method II, the borrower will have to provide a minimum of 25 per cent of total current assets from long-term funds and this will give a current ratio of at least 1.5 : 1. In Method III, borrower's contribution from long-term funds will be to the extent of the entire 'core' current assets, and a minimum of 25 per cent of the balance current assets, thus strengthening the current ratio further. The classification of current assets and current liabilities for calculating permissible level of bank finance has not to be made according to the Companies Act but as per the usual accepted approach of bankers.

A beginning may be made with Method I placing all borrowers in this method within a period of about 1 year and the ideal of the III Method may be reached in stages. The liberal approach under Method I has been suggested as a first step, particularly to facilitate financial structuring of new companies, setting up projects in backward areas and also for flexibility in restructuring of existing companies with a weak financial base. However, the aim should be to move forward and borrowers in the third or second category should not revert to the second or first category respectively by increasing their dependence on bank borrowings. The borrower should not slip back from a higher to lower category.

Banks will work out the position of existing customers and any excess over the allowable limit, to which a borrower will be eligible under the new formula, will have to be reduced progressively by transferring the excess to a term loan amortised over a suitable period. The concept of bank credit forming only a portion of working capital gap has to be used as an instrument for influencing the directional flow of credit, according to the priorities for industries indicated by the authorities concerned from time to time by changing the scales of finance. Further, when a manufacturer has reached a stable level of production over a reasonable number of years, there is no reason why bank finance should continue to be made available to him on the same scale. In such cases a portion of finance made available to him could be withdrawn and such funds would be made available for promotion of new economic activity.

In future, while funding new projects, the term lending institutions may provide margins on the basis of the recommended proposals and the bank which is to finance the working capital requirements should be asso-

ciated at this stage in determining the working capital and margin requirements. In the case of old units, where part of the present cash credit borrowing is transferred to a term loan, to bring the borrowings in line with the recommended proposals, the funded debt and equity relationship may not immediately conform to the norms of the term lending institutions.

A request for additional credit on a regular basis from a borrower who already has an excess borrowing under any of the three methods may be considered provided the borrower brings in matching contribution required under relevant method of lending.

(5) *Style of lending.* The annual credit limit may be bifurcated into a loan which would comprise the minimum level of borrowing throughout the year, and a demand cash credit which would take care of the fluctuating requirements, both to be reviewed annually. There should, however, be no rigidity in the matter of bifurcation of the overall credit limit between loan and cash credit. In the case of industries with a very high degree of seasonality, assessment of bank finance may have to be done on the basis of monthly cash budgets.

The demand cash credit should be charged a slightly higher interest rate than the loan component. This approach will give the borrower an incentive for good planning. In order to ensure that the customers do not use the new cash credit facility in an unplanned manner, the financing should be placed on a quarterly budgeting-reporting system for operational purposes on the standard forms.

(6) *Bill limits.* Apart from loan and cash credit, a part of the total credit requirements within the overall eligibility could also be provided by way of bill limits to finance sellers' receivables. It is desirable that, as far as possible, receivables should be financed by way of bills rather than cash credit against book-debts.

(7) *Coverage of proposed system.* The proposed system of lending and the style of credit may be extended to all borrowers having credit limits in excess of Rs 10 lakhs from the banking system, while the information system may be introduced, to start with, in respect of borrowers with limits of Rs 1 crore and above from the entire banking system and then extended progressively to others.

(8) *Information system.* The mechanics of lending suggested covers examination of the borrower's total operational plan as also his past and current financial position. The borrower should, therefore, furnish to the banker an operating statement and funds flow statement for the whole next year as also projected balance sheet as at the end of the next year, along with the application for advance or renewal for fixation of the overall credit limit.

Annual drawings within the sanctioned limit will be determined by the customer's inflow and outflow of funds as reflected in the quarterly funds flow statement and the permissible level of drawing will be the level as at the end of the previous quarter plus or minus the deficit or surplus shown in the funds flow statement.

Within the overall permissible level of drawing, the day-to-day operations in the account will be regulated on the basis of drawing power as per the monthly stock statements, which will continue to be submitted. Variances are bound to arise in any budget or plan; variances to the extent of, say, ± 10 per cent should be permissible and beyond this the banker and customer should discuss the reasons.

(9) *Follow up system.* A bank has to follow up and supervise the use of credit to verify (i) whether the assessment of lending in regard to borrower's operations continues to hold good and (ii) whether the end-use is according to the purpose for which the credit was given. From the quarterly forms, the banker will verify whether the operational results conform to earlier expectations and whether there is any divergence reading as red signals. However, variance of, say, around 10 per cent may be treated as normal. In addition to the quarterly data, the larger borrowers should submit a half-yearly proforma balance sheet and profit and loss account within two months of the end of the half-year.

(10) *Managerial competence.* Managerial competence is an important factor in the efficiency of operations reflected in profitability and working capital and financial management. Bankers should keep in mind that the appraisal of management may be essential particularly when a new emphasis has been placed on viability and development rather than on security alone.

(11) *Inter-firm studies.* To facilitate inter-firm and industry-wise comparisons for assessing efficiency, it would be of advantage if companies in the same industry could be grouped under three or four categories, say, according to size of sales and the group-wise financial ratios compiled by the RBI for furnishing to banks. The Group has emphasised that it is not practicable to legislate about absolute standards for these ratios. In making inter-firm comparisons, besides examining financial and operating ratios, certain productivity ratios may also be examined to determine labour efficiency, capital efficiency, and the fixed assets efficiency.

(12) *Classification of borrowers.* For the purposes of better control, there should be a system of borrower classification in each bank. This will facilitate easy identification of the borrowers whose affairs require to be watched with more than ordinary care and will also provide a rational base for the purposes of fixing rates of interest for the respective borrowers.

(13) *Bank credit for trade.* While financing trade, banks should keep in view, among other things, the extent of owned funds of the borrower in relation to the credit limits granted, the annual turnover, possible diversion to other units or uses and how much is being ploughed back from profits into the business. They should avoid financing of goods which have already been obtained on credit.

(14) *Norms for capital structure.* The Study Group has found that debt equity relationship is a relative concept that depends on several factors and circumstances such as the state of capital market at one time, Government policy on created money, the need to maintain current assets at a specific level, marginal efficiency of capital or the opportunity cost, etc. In discussing the norms for capital structure we have to keep in mind both the relationships—long-term debt to equity and total outside liabilities to equity. Where a company's long-term debt/net worth and outside liabilities/net worth ratios are worse than the medians, the banker should try to persuade the borrower to strengthen his equity base as early as possible. This would be a more practical approach for the banker than attempting to legislate absolute standards of long-term debt/net worth and total liabilities/net worth ratios for all industries or even industry by industry. Thus, as regards the debt equity ratio, the Group has not suggested any rigid norms.

(15) *Smoothering the process of change over.* The change-over recommended should be effected with a minimum of inconvenience to the banker and the customer. Bankers should examine their administrative systems and procedures with a view to taking quicker decisions. There should be total commitment of the top management in each bank to the new approach. Extensive training facilities in credit appraisal should be provided for bank staff at all levels, with particular emphasis on the suggested information system and handling of inventory and receivables norms. The banker as the lender is entitled to information which he deems necessary for his appraisal and follow up and also as a duty in turn towards borrower to appreciate his difficult situation. On the same basis, the customer should also develop an accountability to his banker.

The possibility of switching over from credit sales to cash sales, wherever possible, both in the private and public sectors should be examined, or at least credit period allowed by sellers should be progressively reduced in order to shorten the transaction cycle and enable bank funds to achieve a larger multiplier.

The Government and the public sector are the biggest buyers in the country and the delayed payments by them increase the level of receivables and consequently the need for bank credit. Government departments have already been following the accepted commercial practice in

respect of their purchases from foreign suppliers but not in respect of their internal purchases. It will be useful if the RBI could initiate discussions on this matter. Further, Government, pending streamlining its procedures, agree to pay interest on especially delayed payments.

In view of the need for efficient transportation and availability of wagons, Railways should assume some responsibility for undue delays as a part of their discipline.

(16) *Follow-up action.* Once danger signals are thrown up in the case of borrowers and signs of difficulty emerge, speedy action is called for on the part of the banker, and timely and firm handling are of essence. In such cases the banker may intervene even in management in the interests of all concerned and the public. To diagnose the ailment the banker can go to a consultant and can then arrange for action, including a financial or structural reorganisation. Expertise has also to be built up in the banking system in organising industry-wise studies on an on-going basis, which should serve as a frame of reference for decision-making in regard to individual cases. Instead of every bank attempting to make detailed studies of all the major industries it will be beneficial if some selected banks concentrate on one or two industries each for which they may be best fitted to study. The results of their study could be made available to other banks as also to RBI.

Banks should utilise the transitory period of six months for conducting training sessions for their operating officials. Such courses should be organised by the National Institute of Bank Management (NIBM) and the Bankers' Training Colleges for training the banks' operating officials. These institutions may also help banks in training the trainers, preparing operational manuals, and in bringing about changes in their systems and procedures. Each bank should conduct banker-borrower seminars to create an understanding between the operating officials in the respective banks.

The main contribution of the Committee of Direction appointed by the RBI should be to take forward the work of the Study Group to a continuing function of a dialogue with industry and banks to ensure smooth running of the new system and to take care of the need for any revision.

ACTION TAKEN ON THE REPORT BY RESERVE BANK

The Reserve Bank in its notification dated August 21, 1975 considered some of the main recommendations of the Group and advised the banks accordingly.

Norms for inventories and receivables. The RBI has accepted the norms suggested by Tandon Study Group in respect of a total of 15 major indus-

tries and these should be applied in respect of both the existing and new borrowers with immediate effect. In the case of all existing borrowers if their levels of inventories and receivables are excessive on the basis of the suggested norms, the matter should be discussed with them and a programme for a phased reduction therein worked out. In case the excess levels continue without justification, while the bank may not abruptly stop operations in the borrower's accounts, which may upset the normal functioning, it may, after a reasonable period of about two months, consider whether it should charge a higher rate of interest on the portion of the borrowings considered as excessive. To keep a watch in this regard, banks may call for additional information. The control should, however, be exercised with due flexibility and understanding of the circumstances which may warrant deviation from the norms for temporary periods.

Coverage. Initially all industrial borrowers including small scale industries with aggregate limits from the banking system in excess of Rs 10 lakhs should be covered. Smaller borrowers (industrial borrowers with aggregate limits of Rs 10 lakhs or less) should be covered progressively as early as possible. In case of industries for which norms have not been specified by the Group, the purpose and spirit of the norms should be kept in view while extending credit facilities.

Approach to lending. It has been decided that banks should initiate immediate action to place all borrowers having credit limit in excess of Rs 10 lakhs from the banking system on Method I suggested by the Group, i.e., financing a maximum of 75 per cent of the working capital gap. Beginning with the borrowers in a relatively weak financial position, the process should be completed within a period of about one year, say, by the end of September 1976. However, in respect of borrowers approaching banks for enhanced credit limits such action may be taken at the time of sanctioning of additional credit limits. At the same time, banks should ensure that the borrowers who are already in the position indicated in Method II do not slip back to the position under Method I. As regards application of Method III to borrowers, the Reserve Bank has not taken any view for the present. However, in the case of borrowers who are already in a better position (i.e., in case where more than 25 per cent of the current assets are financed by the borrower's owned funds and term borrowing), banks may take a case-by-case view, if there is a possibility of their increasing their dependence on bank finance. It has been emphasised that placing the borrowers on Method I is not intended to result in the withdrawal of any existing credit facilities abruptly. The banker should recognise the position of the borrowers and guide them towards norms and the new system of lending within a reasonable time. For existing borrowers, any excess over the finance to which they would

be eligible under the new formula will be identified and converted into a term loan which may be amortised gradually—the period of amortisation depending upon the borrower's cash generating capacity, his ability to raise additional equity and other relevant factors.

Style of credit. As recommended by the Group, instead of making available the entire credit limit as cash credit, banks may bifurcate the accommodation into (i) a loan, comprising the minimum level of borrowing which the borrower expects to use throughout the year, and (ii) a demand cash credit to take care of the fluctuating requirements, both being reviewed annually. Within the overall availability, bill limits may also be allowed. Such bifurcation of credit limits should be done in all cases at the time they are required to conform to the criteria specified in Method I.

Information system. The forms designed by the Group for the information system have been accepted by the Reserve Bank and circulated to banks with deposits of Rs 50 crores and above. Action has also been taken by sending separately to banks with deposits of less than Rs 50 crores the proceedings of the two seminars at which the forms were discussed. The proposed information system may be introduced, to start with, in respect of borrowers with limits aggregating Rs 1 crore and above from the entire banking system and the process completed within six months. The borrowers who already have the information system should be asked to commence submitting the quarterly data straight away and the other borrowers should be asked to build up the requisite information system early so that they also start submitting the data within the aforesaid period of six months.

The question of extending the information system to other borrowers will be considered in due course. In the meantime banks may send the forms to their borrowers enjoying credit limits of Rs 50 lakhs to Rs 1 crore for information so that they can initiate action for building up the requisite system.

It has been urged that the implementation of the new system should be effected with a considerable degree of understanding and flexibility so that the switch-over is smooth. Great importance is attached to this and for this reason a Committee of Direction in the Reserve Bank has been set up for an on-going review of the problems arising in implementing the recommendations. Banks with deposits of Rs 50 crores and above have also been advised to set up similar committees on their own for working the new system.

Critical appraisal

1. It is argued that the situation in which the Group was conceived has completely altered and its recommendations are no longer valid in the present economic situation. This is not correct. The main thrust of the report is growth with discipline in the use of scarce resources of credit. The various suggestions made by the Group are essentially aimed at introducing financial discipline. Credit policy has to be reviewed and revised from time to time dependent upon the prevailing economic environments. But this change in credit policy can be more effective if there is an acceptance of the need of financial discipline.

2. Another criticism is regarding the new approach to lending. There is nothing new about this. In fact, even in the present system of calculating working capital limits, the concept of borrowers' contribution exists in the form of margin on different components of inventory and receivables. Borrowers have been providing such margin from the assets built up from their other sources of finance. The Study Group has tried to introduce a more formalised approach. There is a considerable merit in the new approach of lending as it takes into account the current assets requirements of the borrower and not merely inventory and receivables. The new approach also implies that the current assets should exceed current liabilities and it is really difficult to compromise on this bare minimum requirement. No borrower should expect to carry on his operations entirely or substantially with borrowed funds alone and the suggested method of lending will put a halt to such a tendency on the part of borrowers. Thus there will be an effective check on a tendency to overtrade with borrowed funds. In fact, overtrading is the root cause of many business failures.

3. The excess borrowing identified under the new method of lending has to be converted into a term loan to be repaid over a period of time. This recommendation will not lead to any dislocation in the present financial arrangements.

4. The suggestion made by the Group that the borrower's contribution should match the credit requirements has been criticised on the ground that the capital market is shy and it will be difficult to find equity to strengthen the long-term sources of funds. Here it is necessary to emphasise that the capital market is not that shy as it is made out to be. Recent measures taken by the Government are expected to revive the market and well-managed companies are not generally confronted with problems in raising fresh equity. Further, if the private sector borrowers decide to manage their finances in a disciplined manner, it will only facilitate the revival of the capital market.

5. The critics of the report have vehemently brought out the complexities encountered in an exercise like arriving at norms for inventory and receivables. There is bound to be an element of subjectivity in such an exercise, since it can always be argued that a particular norm should be more or less. Opinions thus could differ as to the specifics. But one should not overlook the need for norms as reference point or as basis to fall back upon. The answer to the complexities does not lie in the suggestion of fixing no norms. A start has to be made and this exercise is an on-going process which should cover the area of industrial activity not already covered. Search has to be made to identify homogenous groups of units in different industries where an industry does not respond to one norm. Instead of making a sweeping criticism of industry norms, the industry associations should come out with concrete suggestions in improving the system and industry should consider it as a challenge to its management. Further, the Group has recognised that norms cannot be rigid or absolute. It is also recognised that an exercise like prescription of norms cannot be a one-shot drill and norms should be kept under constant review and modified if the environment in which industry operates changes. Thus there is an in-built flexibility.

6. There has been an argument that when there is a demand slack, the norms for finished goods should be relaxed. It is necessary to remember that relaxation of credit alone is not the answer to all the problems of industries. If demand is not likely to pick up even with more liberal credit for holding finished goods, the long-term solution has to come from elsewhere. One desirable effect will be efficient inventory management and the consequent reduced draft on bank resources. The debate on the Study Group's recommendations that has been going on in various circles has unfortunately centered around the stipulation of inventory norms and to a less extent to the new approach to lending. The Group's other recommendations, if faithfully introduced and implemented, would go a long way in improving the credit flows.

7. Attention should be drawn to the most vital recommendation of the Group that relates to the information system, a critical input for credit decision, disbursal and watching the end-use. The information system suggested by the Group will be applicable to the borrowers having borrowings aggregating Rs 1 crore and above and later on it has to be percolated down to other borrowers. The information system, as discussed earlier, requires borrowers to submit their projected operations at quarterly intervals, forecast of current assets and current liabilities in addition to the projected inflow and outflow of funds. These data inputs would be coming on a roll-over basis to the banker who could test the forecast for the coming quarter with his experience of the actuals of the

previous quarter. This is a welcome departure from the existing credit appraisal done by banks on the basis of post-mortem analysis of balance sheets—historical data. What is emphasised now is a future-oriented approach—production linked credit.

8. Another area in which the Group's recommendations would be of help is to arrest in a way industrial sickness. It has been noticed that sticky advances follow a particular style. Most of the advances are not bad to start with. The inadequacy of follow up and supervision over the advance results in bad advances. To remedy the situation what is important is that any deterioration in the borrower's operations should be flashed to the banker as quickly as possible and the banker should be in a position to detect such danger signals before it becomes too late. Proper supervision and follow up on the lines suggested by the Group could arrest the incidence of sick loans.

9. The Group realised that there should be enough credit appraisal skills in banks and it has suggested extensive training facilities for bank staff at all levels with particular emphasis on the information system suggested by it and handling of inventory and receivable norms. Further, the Group emphasised that banks should expand the concept of security beyond the mere acceptance of collaterals, i.e., in terms of the prospective earning power of the borrower, his repaying capacity and the viability of the project instead of pledging or hypothecating the existing assets along with guarantee. Placing emphasis on security or guarantee alone constitutes only money lending as distinct from banking. Bank credit should, in fact, be properly disciplined and supervised.

10. The Group's approach to lending and its recommendations regarding a sound financial structure in relation to borrowings will pave the way for a healthy corporate sector in our country as we go along with the implementation of these recommendations. The application of the new system will release the excess funds locked up with the existing borrowers and these funds could be utilised not only to facilitate further growth of the economy but also orderly growth of bank credit.

APPENDIX

The three alternatives may be illustrated by the following example of a borrower's financial position, projected as at the end of next year.

<i>Current Liabilities</i>		<i>Current Assets*</i>	
Creditors for purchases	100	Raw materials	200
Other current liabilities	50	Stock-in-process	20
		Finished goods	90
	150	Receivables, including bills	
Bank borrowings, including bills		discounted with bankers	50
discounted with bankers	200	Other current assets	10
	<u>350</u>		<u>370</u>

*As per suggested norms or past practice, whichever is lower, in relation to projected production for the next year.

<i>Method I</i>		<i>Method II</i>		<i>Method III</i>	
Total current assets	370	Total current assets	370	Total current assets	370
Less current liabilities other than bank borrowings	150	25% of above from long-term sources	92	Less core current assets (illustrative figure) from long-term sources	95
Working capital gap	220		278		
25% of above from long-term sources	55	Less current liabilities other than bank borrowings	150	Real current assets	275
Maximum bank borrowings permissible	165		128	25% of above from long-term sources	69
		Working capital gap	220		206
		Maximum bank borrowings permissible	128	Less current liabilities other than bank borrowings	150
					56
				Working capital gap	220
				Maximum bank borrowings permissible	56
Excess borrowing	35	Excess borrowing	72	Excess borrowing	144
Current ratio	1.17 : 1		1.33 : 1		1.79 : 1

15

Banker's Appraisal of Proposals for Advances*

The Agent,
.....Bank Ltd.,
.....

Dear Sir,

Re : ADVANCES

At the Agents' Conference some Agents pointed out to us that their clients' requests for facilities or for increased limits were rejected. They asked for our guidance as to the basis on which the proposals were considered by us.

We explained to them the various aspects which entered into making of a decision for granting an advance. This letter is being addressed with a view to placing on record some of our observations so that you may study them and give us your suggestions.

The consideration of any proposal depends on the following factors :

- | | | |
|--|---|---|
| (1) Our financial position at the time
when proposal is made; | } | These are policy
considerations
made by the senior
management. |
| (2) Our overall policy of credit from the
point of view of quantum of credit
for a region, trade or industry; | | |
| (3) Whether a particular advance has growth potentiality or it
leads to beneficial relationship. The aspect of growth poten-
tiality means whether an advance leads ultimately to increase | | |

*This is the letter addressed by the Regional Manager of a leading Commercial Bank to the Agents of the Bank's branches under his jurisdiction. It is being reproduced with permission with a view to providing a feel of the considerations that are usually kept in mind by a banker at the time of taking decision on a request for short-term credit.

in deposits, remunerative business or development of the region where our branch is situated;

- (4) Maximization of profitability. Please note that we use the word 'profitability' and not profit. Profitability is based on long-term considerations. We can maximise profits in a short period at the cost of future developments and forfeiting of goodwill; and
- (5) Security aspect.

The first four factors are self evident and, therefore, we need not dwell on them at length. We now take up the security aspect.

A banker in a foreign country, who has given considerable thought to the subject of security, recommends an approach to security from five points of view. These, he terms, for the sake of easy remembering, as 'Five Ps' of security. These are: Prospects, Purpose, Payment, People and Protection. Let us take these five Ps one by one and analyse them.

Prospects. It will be readily admitted that for a banker it will not be prudent to commit himself in an industry or trade which is declining or is stationary.

The question of prospects can be analysed as under :—

- (a) Whether the industry or trade in which the unit is situated has good growth vis-a-vis other industries or trades in the country.
- (b) Whether the unit has good growth compared to the growth of other units in the same industry or trade.
- (c) Whether the unit itself has shown a growth trend over the past, say, 3 to 5 years.

Purpose. The real purpose and not merely the purpose stated by the applicant will determine as to how secured the advance is. The purpose for an advance can be one of the following or their combination :—

- (a) For investment in fixed assets.
- (b) For acquiring liquid assets, i.e., for the purpose of working capital.
- (c) To repay a current or a previous debt or to meet current or past losses.

Payment. Ultimately the crucial test of an advance is whether it gets repaid. The real purpose for which an advance is taken will determine its possibility of being repaid within the time limit stipulated. The repayment of an advance taken for the purpose of acquiring fixed assets will depend on the increased earnings to which the addition or renovation will lead to. Therefore, a banker must very clearly analyse the prospects of income flow or cash flow during the period for which an advance is made.

On the other hand, if the advance is made for acquiring liquid asset then the presumption is that on selling off that asset (sometimes after some processing or servicing is done to it) the advance will get liquidated.

If the advance is taken to repay other creditors, then the banker must investigate thoroughly who the other creditors are who are going to get repaid and why they desire to get repaid. This investigation is very important, because ostensibly a banker may be lending for the purpose of acquiring liquid assets, but by several steps this leads ultimately in the books of the unit to the repayment of a previous creditor, who may have given finance for acquisition for fixed assets or repayment of a previous debt. Therefore, although the banker may feel that his advance is liquid, in practice it may not be so.

People. It is very vital for a banker to know the character and calibre of persons to whom an advance is being granted. The calibre of the people with whom we are dealing can be judged with reference to their know-how of the business as reflected in their purchase, production, sales, labour and personnel, credit and financial policies.

Even after the calibre is known to be good, it is necessary to investigate thoroughly about their business character and integrity.

Protection. After all the above mentioned four aspects have been thoroughly considered by a banker before granting an advance, he has to take into account some residual aspects of security. These will be related to governmental legislation, necessity of physical protection of security which involves the questions of insurance, custody, inspections, etc.

The above mentioned narration deals broadly with the 5 Ps of security. But we as bankers are more interested in the question as to how these 5 Ps can be evaluated. This leads us to a discussion of technical tools available to a banker for evaluating them. In recent times these technical tools have been provided by what is known as "ratio analysis".

RATIO ANALYSIS

The question whether one industry or trade has a good growth compared to another industry or trade in the country can be evaluated by a comparison of, say, rate of return on the capital and borrowings in them and other relevant ratios. These studies require considerable technical skill and, therefore, they can be fruitfully undertaken at the headquarter level.

To illustrate what is stated under (b) and (c) under heading 'Prospects' above, we enclose herewith Exhibits 1 and 2 giving several ratios relating to the 12 textile units. These ratios have been compiled from their published statements of accounts. You will see from the Exhibits

that 12 units are compared with one another on several aspects and that performance of each individual unit is studied for the last three years.

From such a study one can say which unit is stronger in comparison with the other unit in the same industry on a particular aspect or generally. Also, one can know the trend of development or decline of a unit over a certain period of time, on the basis of which future projections can be made.

A ratio is a quantitative relationship between two related items. The recent studies have evolved more than 70 ratios. But from the bankers' point of view only a few are important and relevant. These, which are known as basic ratios, are as under :

- (1) Debt/worth
- (2) Current assets/current liabilities
- (3) Sales/receivables
- (4) Sales/inventories
- (5) Profit/worth
- (6) Gross profits/sales
- (7) Selling, general and administrative expenses/sales
- (8) Net operating profits/sales
- (9) Profits before unusual items/sales.

Debt to worth ratio. Before we grant an advance to a unit, we should generally know what stake the people owning that unit have compared to the stake of the outsiders.

This leads to forming of a ratio of total debt to the capital and reserves of the unit. In the study of 12 textile units in 1961, you will see that the debt to worth ratio varies from 4.84 for Mill No. 2 to 0.30 for Mill No. 10.

This means that Mill No. 2 has borrowed for its business Rs 4.84 from other people compared to Re 1 of its own put into its business. On the other hand, Mill No. 10 has only 30 P of other people in its business, compared to Re 1 of its own. This ratio is indicative of the long-range solvency of a unit.

What should be the safe amount of debt a unit should have compared to its own resources varies from industry to industry, region to region and country to country or period to period. It also depends on the customs and traditions in a country. Looking at all this, we may venture to say that for textile industry debt to worth ratio should not be more than 2. That means, if a unit has debt more than twice its own resources, then possibly its long-term solvency is at stake.

As stated above, the debt to worth ratio gives us an indication of long-term solvency of a unit. As bankers normally interested in short-

term advances for working capital, we are more concerned with short-term solvency of the unit. This can be measured by what is known as the current ratio.

Current ratio. This ratio is arrived at by comparison of the current assets and current liabilities. But, then, what are current assets and current liabilities? The current assets of a unit are those assets which will be converted into cash during the normal business cycle of the unit. Similarly, current liabilities are those liabilities which have to be met during the normal business cycle of the unit. Current ratio is:

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$

and current assets less current liabilities gives us the figure of the working capital.

Business cycle of a unit is to be carefully evaluated. In the textile industry, it is traditionally taken to be one year; for a ginner of cotton, it will be a season extending over a period of, say, 6 months and for a brewer of wines it may be as long as 5-7 years.

From the enclosed sheet of the textile units, you will see that the current ratio varies from 2.35 for Mill No. 10 to 0.90 for Mill No. 2. Those units which have ratio less than one, have no working capital or have minus working capital. From this it will be clear that Mill No. 10 had high liquidity as at the end of 1961.

However, as a banker, we have to go in for deeper analysis of ratios for we are called upon to give advances against specific assets such as inventories, or book debts, *i.e.*, accounts receivables. It is, therefore, important to know the relevant aspects of these assets.

Sales to receivables. From the study of the textile units, you will see that this ratio varies from 6.49 for Mill No. 2 to 3.28 for Mill No. 4. That is to say, the book debts or account receivables vary from about 2 months of sales to $3\frac{2}{3}$ months of sales. Dividing number of months of a year, namely 12, by the figure of the ratio gives you number of months' sales which is in receivables.

This ratio should be judged with reference to the payment practices prevalent in an industry or trade. For textile mills, we can say that from the present practice of making payments, receivables equivalent to two or two-and-half months' sales would be considered normal. If receivables are of higher magnitude than this, then its reason should be thoroughly investigated. The questions which then arise are: whether the products sold by the unit have a ready market or is it that longer credit is to be given for their sales, or whether it is a deliberate policy of the manage-

ment to give credit to push sales in competition with other financially weaker units, etc.

Accounts receivable may be in the form of open accounts or bills. Therefore, to judge whether a client's proposal for a bills purchased limit is feasible or not, one must know the qualitative as also the quantitative aspect of accounts receivable. Qualitative aspect is judged by such factors as: how old is a receivable or book debt compared to the practices prevailing in the industry or trade; what has been the past experience of bad and doubtful book debts; who are the parties owing the book debts.

Quantitative aspect can be judged by the ratio sales/accounts receivable. After this, if we know the usual proportion between open accounts and bills, we can arrive at a fairly scientific evaluation of the requirement of a bills purchased limit of a client. In this evaluation one must also take into account seasonal pattern of the industry or trade concerned.

Sales to inventories. Inventories of a unit may consist of the following:

- (a) Raw materials inclusive of spare parts, stores, coal, etc.;
- (b) Stocks in process; and
- (c) Finished products.

In the case of non-manufacturing units, the inventories may consist of only items listed under (c) above.

It will be appreciated, therefore, that for considering a cash-credit proposal, the question as to how much inventories a unit should hold becomes important. This quantitative criterion is provided by ratio: Sales over inventories.

You will see from the Exhibit 1 that this ratio for the 12 textile mills varies from 2.04 for the Mill No. 7 to 5.60 for Mill No. 10. Dividing number of months of a year (*viz.* 12) by this ratio, gives you number of months of sales which are held in the form of inventories. In the case of these two Mills, it means that inventories varied from about 6 months to about $2\frac{1}{4}$ months of sales. For the textile mills, one can say that inventories equivalent to three months' sales may be considered to be usual and average.

If a unit is carrying larger inventories than to be normally expected in that industry or trade, then the banker should carefully evaluate the said situation. The questions which may have to be answered would be:—

- (a) Is the production policy defective?
- (b) Is too much capital being locked up in raw materials, spare parts, etc.?
- (c) Are the finished products easily saleable?
- (d) If they are so saleable, then, is the sales organisation of the unit efficient and their sales policy sufficiently dynamic?

It will, therefore, be clear that whilst considering an advance facility against stocks, one must carefully evaluate the relation of stocks at any time to the total sales during the normal business cycle of the unit. If this ratio for the unit is in line with the normal or average ratio for the said industry or trade, then from it can be determined the reasonable limit for the cash-credit. On a rough measure, the limit will be equivalent to the normal stocks minus margin requirements. A banker must also take into account seasonal factors which may affect holding of inventories by the unit.

The above mentioned four basic ratios which we have discussed in detail will be affected—

- (a) By floating of further capital or repayment of some capital (preference shares) by the unit;
- (b) By borrowings either from trade, financial agencies, or from Government (indirectly by deferring tax payment, or by tax provision);
- (c) By selling off one type of asset and purchasing another type of asset, *i.e.*, by changes in the holdings of various types of assets; and
- (d) By ploughing back earnings generated from operations.

The transactions illustrated under (a), (b) and (c) are sufficiently evident. We, therefore, take up transactions under (d).

The pertinent question which arises whilst considering income generated from operations is: whether earnings are commensurate with the capital invested. This leads to the discussion of profits to worth ratio.

Profit to worth. The profit here means profit before unusual items. These profits before unusual items are arrived at after providing for materials, labour, motive power, repairs, depreciation, selling, general and administrative expenses, interest and provision for income tax.

Worth means owned resources of the unit, *i.e.*, capital and reserves.

In the Exhibit 1, profit to worth ratio varies from 7.83 for the Mill No. 10 to 34.20 for Mill No. 2.

From this, one may quickly jump to the conclusion that capital of the Mill No. 2 earns higher return than capital of Mill No. 10. However, if one reads this return in relation to long-term solvency of a unit, one's conclusion will be of different type. Therefore, some bankers advise making the ratio profits to worth plus borrowings. We discuss the question of reading ratios carefully later on.

It would be evident from this discussion that the ratio, profit to worth, should be evaluated in relation to debt to worth and the other ratios relating to sales as shown in the Exhibit 2.

Ratios. (a) Gross profits to sales, (b) Selling, general and administrative expenses to sales, (c) Net operating profits to sales, and (d) Profits before unusual items to sales.

All the above mentioned ratios would be easily understood by you, if we just define various phrases used.

Gross profits are arrived at by the following formula :—

Sales minus cost of materials, labour, motive power, repairs and depreciation.

S. G. & A. : Selling, general and administrative expenses.

Net operating profits are arrived at by the following formula :—

Gross profit minus S.G. & A. expenses=Net operating profits.

As stated above, profits before unusual items are arrived at by the formula :—

Net operating profits less interest and provision for income-tax.

In devising the ratio of several types of profits to sales or to worth, one should omit unusual items such as income derived by sale of machinery or immovable properties or expenses such as donations, etc.

From the Exhibit 2 you will see that the percentage to sales of net operating profits varied from 5.93 for Mill No. 4 to 14.87 for Mill No. 8. This means that from its operations, without taking into account interest and income tax, Mill No. 8 earned 14.87% of its sales, whereas Mill No. 4 earned 5.93% of its sales.

We now conclude this discussion by indicating the pitfalls encountered whilst compiling and reading the ratios. These pitfalls will be avoided if the following precautions are taken :

- (i) To see that ratios are made of two interrelated items, for instance, ratio of profit to sales is meaningful but ratio of profits to land area of the unit would be meaningless.
- (ii) When comparison of ratios is being made, to take care that the ratios relate to the same period and are of the same type of units. For ratios shown in Exhibits 1 and 2, we have taken care that
 - (a) all Mills have the same accounting year, *viz.*, calendar year;
 - (b) that they manufacture only cotton textiles. (There is only one exception in the 12 mills. This one unit also manufactures engineering goods);
 - (c) same types of items have been taken from the Balance Sheets of the 12 Mills to form relevant ratios.
- (iii) A ratio should not be read by itself. We have illustrated this pitfall whilst discussing above the ratio of profit to worth. Ratio should be read in conjunction with other relevant ratios.

- (iv) The study of ratios does not give one an answer. It merely indicates the direction in which the inquiries should be conducted and which questions should be asked. Only when such explanations are obtained that a final correct picture emerges.

We would like you to study this letter very carefully and whenever you meet the undersigned, you can freely ask for clarifications and explanations on any of the points discussed here or on any other point which may arise during the course of your study.

Yours faithfully,
Sd.
Regional Manager.

Encl :
MD.

Exhibit 1

Basic Ratios

Sr. No.	Current (C.A. to C.L.)				Debt to worth				Sales to Receivables				Sales to Inventories				Profit to worth %			
	1959	1960	1961	1962	1959	1960	1961	1962	1959	1960	1961	1962	1959	1960	1961	1962	1959	1960	1961	1962
1	.84	.96	1.06		1.95	1.66	1.30		3.12	3.05	3.58		3.92	4.07	5.55		5.40	17.95	14.55	
2	.83	.84	.90		5.00	4.72	4.84		7.60	6.64	6.49		2.07	2.06	2.17		5.93	16.58	34.20	
3	1.62	1.60	1.52		1.25	1.33	1.17		8.20	6.70	4.92		2.90	2.88	3.93		4.80	4.79	14.66	
4	.81	.92	.98		3.06	3.31	2.48		4.35	3.20	3.28		4.66	3.43	4.85		LOSS	25.72	21.63	
5	.80	1.17	1.09		3.07	3.40	3.59		5.25	3.49	3.49		4.16	4.92	4.47		LOSS	37.20	32.08	
6	1.07	.99	.92		1.70	1.61	1.61		4.00	4.33	4.01		5.97	3.80	5.24		15.74	18.70	22.10	
7	1.28	1.39	1.40		1.28	1.28	1.49		7.13	8.31	4.42		2.65	2.73	2.04		3.96	10.38	9.05	
8	1.71	2.12	1.58		0.47	0.35	0.46		3.46	4.30	5.38		3.56	3.06	3.99		6.93	11.35	12.39	
9	1.04	.69	.94		1.54	1.76	1.57		4.45	5.46	5.86		3.09	2.87	3.06		4.75	8.63	12.09	
10	2.53	2.22	2.35		0.34	0.38	0.30		3.76	2.87	3.86		4.66	4.10	5.60		9.64	8.83	7.83	
11	1.80	1.78	2.00		0.69	0.40	0.40		4.47	6.98	4.85		4.45	5.35	4.84		8.82	11.83	11.26	
12	.80	.88			2.77	2.72			3.43	3.20			4.50	4.20			14.00	14.80		

Exhibit 2

Sr. No.	Sales (Rs in lakhs)					% to Sales of G. P. (after depreciation)					% to Sales of S.G.A. expenses					% to Sales of Net Operating Profit					% to Sales of Profit before unusual items				
	1959	1960	1961	1962	1962	1959	1960	1961	1962	1962	1959	1960	1961	1962	1962	1959	1960	1961	1961	1961	1959	1960	1961	1961	1961
1	2,07	2,30	2,65			7.35	11.43	11.52			2.65	2.55	3.08			4.70	8.88	8.44			1.99	6.77	5.13		
2	1,79	1,75	2,04			5.79	9.97	10.67			2.47	2.72	2.82			3.32	7.25	7.85			0.99	2.93	5.19		
3	1,28	1,40	1,73			6.55	11.08	13.55			3.38	4.13	3.96			3.17	6.95	9.59			1.67	1.69	5.35		
4	1,21	1,12	1,30			2.71	7.91	9.31			2.55	2.64	3.38			0.16	5.27	5.93			LOSS	5.16	4.59		
5	98	1,21	1,31			..	9.95	11.23			2.92	2.85	3.70			LOSS	7.10	7.53			LOSS	6.17	5.47		
6	2,12	2,14	2,89			7.47	12.69	13.10			2.71	3.38	3.57			4.76	9.31	9.54			4.22	5.86	6.65		
7	1,88	1,97	1,94			5.56	9.30	10.15			2.58	2.93	3.26			2.98	6.37	6.89			1.28	3.38	3.59		
8	1,87	1,77	2,06			13.34	19.88	20.24			4.66	5.42	5.37			8.68	14.46	14.87			5.09	8.83	8.59		
9	2,49	2,54	2,74			7.23	9.47	13.12			4.24	4.39	4.83			2.99	5.08	8.29			1.59	3.03	4.54		
10	4,07	3,99	4,96			16.03	15.91	17.82			5.29	4.83	5.17			10.74	11.08	12.65			6.87	6.72	5.88		
11	2,14	2,41	2,49			LOSS	12.63	14.56			3.05	3.27	4.03			LOSS	9.36	10.53			4.25	6.48	5.83		
12	1,49	1,73				6.2	12.7				3.2	2.8				3.00	9.90				2.70	2.20			

CASE STUDIES

14.1. SWATANTRA BANK

On February 14, 1963, Mr. Raj, the Managing Director of the Progressive Cotton Mills, a public limited company, discussed with Mr. Verma, the manager of the Swatantra Bank, the need for extending the Mill's maximum credit limit by Rs 25 lakhs. To permit such an increase, Mr. Raj requested a reduction for a period of 6 months of the required 40 per cent margin of safety on the hypothecated inventories to 25 per cent. The Progressive Cotton Mills had established a cash credit limit with the bank for Rs 75 lakhs against the hypothecation of inventories at 60 per cent of value. In support of his request, Mr. Raj explained that the Mill's stock of finished goods and its accounts receivable had accumulated because of the depression in the cotton textile trade following the Chinese aggression of October/November 1962. He did not feel pessimistic, however, about the outlook for he felt that the large amounts in receivables and inventories would be much reduced over the next three months.

Mr. Raj proposed to use the additional funds made available by an increase in credit limit for distribution of dividends of about Rs 3.75 lakhs in March 1963 and for meeting the claims of the few trade creditors who were pressing for payment. He felt that market stringency was of a temporary character and it would be wise for the Mills to maintain the 1961 and 1962 dividend rate for retaining investors' interest in the Company.

Mr. Verma had received balance sheets and income statements from the Progressive Cotton Mills (Exhibits 1 and 2). He turned them over to Mr. Shah, the Loan Officer, and asked for his comments on Mr. Raj's request.

The Progressive Cotton Mills were operating the account with the Swatantra Bank since the very inception of the Company in 1927. Throughout its history, the Company had maintained very good relations with the bank. Mr. Raj had taken over top management from his father in 1947. He had developed a regular practice of personally discussing the Company's financial affairs and plans with the bank and enjoyed a high reputation for his integrity and competence. In fact, there had never been an occasion for the bank to feel that Mr. Raj kept anything secret which was material from the bank's point of view. The Mills were already providing profitable foreign exchange business to the bank. Apart from the account of Progressive Cotton Mills, the bank was getting business from another cotton textile unit in which Mr. Raj had the controlling interest.

The Progressive Cotton Mills were a composite textile unit with 625 looms and 33,750 spindles. They manufactured cotton yarn and cloth mostly of a medium grade category. Their production comprised mainly grey and bleached dories, drills, shirtings, towels, sheetings and dhoties. Currently, the cotton textile industry was characterised by an intense competition and rising costs. Further, along with the rising living standards, the demand for medium grade cloth was being replaced by a growing demand for fine and superfine cloth with new attractive designs and finish. Textile mills with worn-out machinery and inadequate facilities for fine varieties of cloth found themselves in a disadvantageous competitive position. The management of Progressive Cotton Textile Mills, realising these trends, had started a programme of renovation and modernisation of its plants in early 1958 which could permit them to produce fine grades of yarn and cloth.

Three-fourths of the renovation and modernisation programme had been completed by the end of 1962 and the rest was expected to be completed in 1963. In fact, the original plan for renovation and modernisation drawn in early 1958, provided for an outlay of Rs 87.5 lakhs over a 5-year period. The management looked to five sources for these funds :

	(Rupees in lakhs)
Depreciation	25.00
Retained earnings	12.50
Public issue	10.75
Bank borrowing against the mortgage of machinery proposed to be installed and renovated	25.00
Deferred payment to suppliers of machinery	14.25
Total:	87.50

The plan was kept flexible with regard to the expenditure to be incurred in individual years. However, the programme of renovation had lagged partly because of a fall in profits and partly because of the fact that funds were locked up in inventories and accounts receivable. The Company had undergone a period of financial strain throughout the year of 1962.

Considering Mr. Raj's proposal, Mr. Shah recalled that the bank at the Company's request extended the drawing-limit, in June 1962, from Rs 62.5 lakhs to Rs 75 lakhs. He also noted, from the statements submitted by Mr. Raj, a substantial decline in the profitability of the Company in 1962. The lower profit was attributed to discounts granted to dispose of the accumulated stock and to the interruption of the production schedule during the installation of the new machinery.

Mr. Shah felt that the position required a detailed analysis and review. He also questioned whether the Company needed funds only for short-term. He had a statement (Exhibit 3) showing various consolidated financial ratios for other local units in the cotton textile industry. These 'industry' ratios were obtained from the report of a Study Group formed to analyse the financial statements of the textile mills located in the centre. The study covered 63 out of a total of 73 units. For comparative purposes, Mr. Shah developed the corresponding ratios for the Progressive Cotton Mills from its balance sheets and income statements.

Exhibit 1

Progressive Cotton Mills Ltd.
Balance Sheets as on December 31

(Rupees in lakhs)

	1957	1958	1959	1960	1961	1962
ASSETS						
Fixed Assets (Net)	31.60	29.78	31.61	43.95	51.11	72.24
Uninstalled Machinery	..	3.78	6.39	4.94	0.51	3.04
<i>Current Assets</i>						
Investment	0.94	0.94	0.94	0.94	0.96	0.96
Inventories	105.03	90.76	88.51	90.25	118.40	132.48
Debtors	20.55	36.00	30.29	25.96	48.74	64.11
Loans and Advances	3.13	2.51	3.46	5.46	7.69	9.59
Cash and Bank Balances	2.02	2.67	2.45	1.69	0.84	0.69
Total	163.27	166.44	163.65	173.19	228.25	283.11
CAPITAL AND LIABILITIES						
<i>Net Worth</i>						
Share Capital	32.50	32.50	32.50	32.50	43.19	43.24
Retained Earnings	45.31	42.63	43.35	47.98	52.79	50.90
Total	77.81	75.13	75.85	80.48	95.98	94.14
Long-term Mortgage Loan	..	..	..	15.34	19.24	27.18
<i>Short-term Loans:</i>						
Secured (on hypothecation of stocks)	44.31	51.08	38.26	28.35	57.25	73.58
Unsecured	21.49	17.94	17.70	15.79	15.85	25.80
Total	65.80	69.02	55.96	44.14	73.10	99.38
TRADE LIABILITIES AND PROVISIONS						
Trade Liabilities	10.86	14.50	18.16	18.23	27.48	56.55
Provisions	8.80	7.79	13.68	15.00	12.45	5.86
Total	19.66	22.29	31.84	33.23	39.93	62.41
Grand Total	163.27	166.44	163.65	173.19	228.25	283.11

Exhibit 2

Progressive Cotton Mills Ltd.

Income Statement for the years ending Dec. 31

(Rs in lakhs)

Particulars	1957	1958	1959	1960	1961	1962
A. Sales	189.08	231.90	234.60	246.84	242.08	278.99
B. Cost of goods sold						
Raw Materials	105.26	95.49	84.70	103.09	98.78	106.20
Manufacturing and other Expenses	100.43	113.90	119.63	134.75	149.50	170.58
Depreciation	2.88	3.10	3.38	4.63	4.46	8.13
Stock variance	-27.86	14.41	18.74	-12.31	-28.30	-15.99
Total	180.71	226.90	226.45	230.16	224.44	268.92
C. Profit on operation (A—B)	8.37	5.00	8.15	16.68	17.64	10.07
D. Non-operating Income	0.60	0.98	2.58	1.05	1.28	1.58
E. Total (C+D)	8.97	5.98	10.73	17.73	18.92	11.65
F. Non-operating Expenses						
Interest	3.45	3.99	3.40	3.30	4.98	6.86
Donations	0.05	0.03	0.06	0.04	0.31	0.30
Total (F)	3.50	4.02	3.46	3.34	5.29	7.16
G. Total Profit before Tax	5.47	1.96	7.27	14.39	13.63	4.49
H. Taxes	1.00	1.76	2.69	6.06	5.00	0.56
I. Net Profit after taxes	4.47	0.20	4.58	8.33	8.63	3.93
Dividend declared	1.94	1.95	2.85	3.66	3.90	3.89
Retained earnings	2.53	-1.75	1.73	4.67	4.73	0.04

Note: 1. There was no provision in the accounts for the payment of gratuities to employees. Whenever gratuities were paid, the company followed the practice of charging them directly to retained earnings.

2. In the year 1961, assets were written-up by Rs 2.30 lakhs owing to calculations in accordance with the Companies Act, 1956. This amount was credited to retained earnings account.

Exhibit 3

Table of Comparative Ratios for Progressive Cotton Mills—1958-1962 Inclusive

Ratio	Unit measure- ment	1958		1959		1960		1961		1962	
		Indus- try	PCM	Indus- try	PCM	Indus- try	PCM	Indus- try	PCM	Indus- try	PCM
1. Profit before Tax/Total Assets	%	5.30	1.18	6.60	4.45	11.15	8.32	10.99	5.97	1.59	
2. Profit before Tax/Total Sales	%	4.60	0.85	5.60	3.10	9.68	5.83	9.51	5.62	1.60	
3. Total Sales/Total Assets	Times	1.13	1.39	1.20	1.43	1.15	1.43	1.16	1.06	0.99	
4. Operating Profit/Sales	%	5.56	2.16	6.54	3.48	9.60	6.76	10.63	7.29	3.61	
5. Sales/Fixed Assets	Times	3.77	7.79	3.68	7.42	3.54	5.62	3.34	4.74	3.86	
6. Sales/Current Assets	Times	1.73	1.75	1.89	1.87	1.81	1.99	1.85	1.37	1.34	
7. Sales/Stocks	Times	3.05	2.56	3.53	2.65	3.37	2.74	3.58	2.04	2.11	
8. Debtors/Sales	Days	66	57	62	47	67	38	66	74	84	
9. Net Fixed Assets/Total Assets	%	29.99	17.89	32.50	19.32	32.59	25.38	34.62	22.39	5.2	
10. Investment/Total Assets	%	4.66	..	4.18	..	3.76	..	2.93	..	..

11. Current Assets/ Total Assets	%	65.35	79.84	63.32	76.78	63.65	71.77	62.45	77.38	73.41
12. Proprietor's Fund/ Total Assets	%	47.89	45.14	47.07	46.35	45.82	46.47	47.73	42.06	33.25
13. Current Assets/ Current Liabilities	Times	1.27	1.46	1.22	1.43	1.20	1.61	1.25	1.56	1.28
14. Quick Assets/ Quick Liabilities	Times	1.37	1.74	1.23	1.03	1.17	0.86	1.26	1.24	1.04
15. Profit retained in Business/Profit after tax	%	..	..	..	37.60	..	55.47	..	54.78	1.00
16. Profit before tax/ Proprietor's fund	%	10.86	2.61	14.22	9.59	24.34	19.89	23.02	14.20	4.77
17. Rates of Growth (Total assets)	%				(1.68)		5.82		31.80	24.40

Raising Term Loans

Business firms often require intermediate term funds popularly known as term loans. The duration of such loans exceeds one year and may extend upto 10 years and in some cases even to a period of more than 10 years. Term loans are sought for investment in plant and equipment or permanent additions to current assets. Many concerns are forced to seek such loans to finance expansion and/or modernisation of their plant and equipment. Permanent additions to current assets also become necessary to maintain a long-term growth in sales particularly when prices rise. Term loans may also be required for refinancing of funded debt or revamping of capital structures. Term loan may be used to retire a bond issue in order to reduce interest costs, rearrange maturities or eliminate restrictive provisions of bond issue. It may also be used to retire redeemable preference shares, thus substituting tax-deductible interest payment for non-deductible dividends.

As one of the alternatives to raise funds, the term loan has the following *special features*: (i) It removes the threat of floating debt that may have to be constantly renewed. Under a term loan it is necessary only to pay the interest and maturing fraction of the loan. The schedule of the repayment of a term loan can be geared to the ability of the business to repay without either contracting operations, or shifting the credit to other lenders. Systematic debt reduction is provided in place of haphazard repayment or renewal. (ii) Earnings and cash flows are increased from the additional working capital supplied and also from the increase in depreciation expense where the proceeds of term loans are used to acquire equipment or machinery provided corporate earnings are adequate to absorb depreciation. Thus the expansion of profitable assets produces the means of repaying the additional debt. (iii) Term loan introduces a sort of financial discipline for the borrowing firm as it is required to forecast cash flows with great care in view of the schedule of interest payment and principal repayment. Regular quarterly or half-yearly or yearly instalment payments

are made which are applied to pay the interest and to reduce the principal of the loan outstanding. Repayment in periodic instalments typically is designed to fit the projected capacity of borrower to repay. So long as the borrower carries out his commitments under the loan agreement, the lender requires payment only in accordance with specified maturity schedule. In case of default on the part of the borrower, the loan agreement usually provides for the acceleration of the maturity of the loan, i.e., payment of loan before maturity. (iv) Term loan involves the granting of credit on a formal loan agreement that specifies the terms and conditions of extending the credit and also provisions regarding the financial conduct of the borrower. The agreement also provides for certain protective covenants for the benefit of the lender. The terms of loan are usually arrived at in direct negotiation between the borrower and the lending institution. (v) Where the amount of loan is too large for one lending institution to handle alone, either because of the statutory restrictions or because it is not easy to assume the entire risk, an arrangement is often made for several lending institutions to participate in the credit on a syndicate basis. The larger the loan, the greater the extent of participation.

Granting term loans by Indian banks. Term loans are granted in India by development banks such as the Industrial Finance Corporation of India, the Industrial Development Bank of India, the State Financial Corporations, and commercial banks. During the last 15 years, the role of commercial banks in granting term loans has been noteworthy. In 1958, the Reserve Bank of India established the Refinance Corporation for Industry (it was merged with Industrial Development Bank of India in 1964) after recognising the need that the pattern of planned development made it incumbent on commercial banks to enter this new line of activity. At that time the Reserve Bank was eager to recommend a change in the attitude of commercial banks towards term lending which could boost their profits and could enable the borrowing units to enjoy certainty of having funds over a specified period, irrespective of changes in monetary policy. From the credit control point of view also, term loans by front door, instead of rolling over of short-term loans, were considered to impose a certain degree of financial discipline on the borrowers through the repayment schedules.

In 1964, however, the Governor of the Reserve Bank argued the case against the commercial banks' participation in term lending. He felt that the banking system could not afford to lock up large funds in long-term assets because it affected the liquidity of banking system and made it difficult for the banks to meet the working capital needs of trade and industry. This change in the attitude of Reserve Bank on term lending created a big surprise. A certain amount of blending of functions for

multi-purpose growth of the banking structure has to be allowed as it promises the best results. The scheme of term lending should be allowed to operate with some built-in safeguards against impairment of the liquidity of the banking system. A ceiling in terms of a proportion of owned resources (capital and reserves) plus time liabilities of a bank may be fixed to take up this form of lending. The problem is, however, not merely one of liquidity. Steps should also be taken for supplementing banks' resources so that they can take an increasing interest in term lending.

Term loan and the borrower. The attractiveness of term loan capital to the borrower depends on the nature and intensity of his need and the alternative source available to him. To many growing enterprises the big attraction of term loan credit is the contractual assurance of continued credit for a definite period so long as the terms of the credit are met. This helps the borrowing concern to go ahead with its plans and projects for the use of funds. Usually the plans involve investments of funds either in a continuing expansion of working capital or in plant and equipment that pays out over a period of years.

The direct negotiation implied in the term loan has a number of advantages to the borrower. Term loan can be negotiated faster and at less expense than public issues of equity shares or debentures. Moreover, the mechanics involved in arranging a term loan are less than those of a typical public issue.

Many companies are interested in having term-loans because they want to make firm arrangements for funds that they may not need immediately. For instance, a company planning a new plant may wish to complete the borrowing necessary to finance the expansion before the actual installation of the plant. It is possible by paying a small fee, known as the commitment charge, on unused funds which may permit the borrower to draw against the loan in accordance with the actual requirement of funds. This flexibility can mean significant interest-saving for the borrower. Further, the cost of term credit is very much lower than the cost of funds raised either through sale of ordinary or preference shares or by making the public issue of debentures.

There are certain inherent disadvantages also in the use of term credit. The accelerated maturity clause of the loan agreement may be a severe penalty for the acts of default by the borrower. The assurance of credit under term loan is actually dependent upon the borrower's ability to meet fully the terms of the loan agreement throughout the life of the credit. Certain terms and conditions in the loan agreement tend to reduce the flexibility of management to some degree. In some cases there is an inherent or potential conflict of interests between the borrower and the lender. Many possible modifications, which may seem desirable from

the borrower's point of view, may not be attractive to the lender. For instance, the borrower may like to expand into a new field that promises big profits but contains substantial risks. He may like that the lender should waive restrictions on further debt. But the term lender, who may be gaining little from extra profits from expansion, may well refuse to increase his risk by permitting the addition of debt.

Many borrowers also find the maturities and repayment schedules required by the lending institutions unduly restrictive. It is interesting to note that adoption of many of the policies required by the lender is only a matter of good financial management. Even without specific strictures by the lender, the borrower should maintain an adequate net working capital and restrict withdrawals or dividend to reasonable amounts in relation to earnings.

Effective negotiation. From the borrower's point of view it is most important that the term loan arrangements should be negotiated effectively. Some of the important considerations in this respect are examined below.

Maintaining a healthy relationship. Companies prefer to have term loan from banks as against the financial corporations. This is due to the fact that less formalities, consuming time and money, are involved in case of having term loans from banks. But it requires a proper cultivation and maintenance of a good banking relationship. Such relationship has to be built to last. If well maintained, it grows strong over the years and becomes a valuable asset of the business. Loan arrangements are only part of the total relationship with the bank. Maintenance of an attractive deposit balance is regarded as a major factor for a strong relationship with the bank. Another ingredient is the creation of an atmosphere of mutual trust and confidence. The bank lending officers prefer to hear of major developments affecting the company promptly and from company officers instead of bazar rumours or other unreliable and often distorting sources of information. The importance of providing the lender with correct information about the company, not only at the beginning of negotiations but throughout the loan period, can hardly be over-emphasised. If any modification in the agreement terms is needed, as may often be the case, the borrower should give the lender as much notice as possible of the required need for change and carefully work out appropriate modifications to propose. Lastly, there is no adequate substitute for effective performance as the foundation for a sound and productive borrower-lender relationship.

Good understanding of the theory and practice of term-lending. There is need of basic understanding of term loan theory and practice on the part of borrowers which can help to establish the limits of bargaining within which the borrower must operate and see ways he can meet the needs of

the lender at minimum sacrifice of his own interests. The working out of a credit arrangement that can stand up over a period of years calls for careful planning of a number of aspects of the firm's operations. The more clearly the future needs of the business (for facilities, working capital, dividends, etc.) can be formulated, the more effectively the plans for financing through term credit can be brought into harmony with the overall plans and objectives of the firm. The desires of the borrower have essentially to be reconciled with the needs and the demands of the lender. In other words, it requires a policy of give-and-take of bargaining over specific provisions.

Repayment planning. The terms of repayment are very significant for the borrower who is in a much better position than the lender to appraise his own capacity to carry and repay debt. He should carefully estimate, through forecasting, his future cash throw-off (depreciation plus retained earnings) and try to borrow no more than he can repay easily after providing a margin between his forecasted means of repayment and the contractual repayments. The more uncertain or unreliable the forecast, the greater should be the care taken for margin of safety. If the borrower cannot project his repaying capacity, serious doubt is thrown on the wisdom of borrowing. The act of adjusting repayment to cash throw-off remains an art rather than a science because profits and cash-flow forecasts are at best estimates. From the very beginning of the idea of having term loan, borrower should plan for repayment as an integral part of his financing.

A critical variable in the assumption of ability to repay is the extent to which operational inflows relating to depreciation and other non-cash charges are matched by outflows for new plant or equipment. Management of the borrowing firm has to assess the degree to which it can postpone desirable expenditure without causing much injury to its profitability. It has to anticipate a developing shortage of funds many months in advance of the actual need in order to step up equipment purchases for servicing the debt. Management has also to decide whether it can reasonably regard the depreciation flows available for debt service or such flows should be treated as an emergency source or regarded as an unreliable source.

A provision for pre-payment is also made in the term loan agreement. Such pre-payments are applied to reduce the principal in inverse order, i.e., against the most distant instalment rather than the next due so that pre-payments are not a substitute for regular payments. The lender may impose or waive the penalty (pre-payment charge) on early repayment. This is often a matter of bargaining.

Agreeing to covenants. When a term loan is obtained, an agreement is signed specifying rights and obligations of the lender and borrowers. The payment schedule and the terms of the agreement are subject to

negotiation. The terms and conditions in the agreement have to be realistic. As the term loan contract runs for more than one year, it usually includes restrictive covenants against acts or policies that may weaken the borrower's position. These provisions are chiefly designed to preserve liquidity, maintain an adequate net worth, and retain earnings for use in retiring the loan. The more common provisions are: maintenance of a minimum amount of net working capital or a required ratio of current assets to total debt; restrictions on dividend; restrictions on expenditures for fixed assets in excess of a stipulated amount; prohibition on the assumption of additional debt with equal or prior status; prohibition on the pledging or mortgaging of assets to secure additional debt; preventing the sale or lease of assets without approval of the lender; prohibition on any merger and consolidation; adequate maintenance and insurance of property; suitable accounting records; and submission of appropriate financial reports from time to time. There is also an acceleration clause which states that if the borrower fails to make the required payments or to live up to the provisions of the agreement, the whole of the loan is immediately due and payable.

All these covenants combined with the acceleration clause usually appear very burdensome and oppressing. But if the lender is to provide the use of his money for long periods, it is only reasonable that he should seek to protect himself during that period. The apparent harshness is tempered by two considerations: first, many of the policies required by the bank are only matters of good financial management; secondly, there is room for discretion on the part of the lender over the years.

The borrower should sort out the restrictions that may curtail his freedom and impose unnecessary burden from those restrictive covenants whose compliance is routine. The secret of successful bargaining in this respect is to concede those points which are important to the lender but represent relatively minor concessions to the borrower. The give-and-take of bargaining over specific provisions often raises questions that can only be resolved at top management. For instance, top management has to assume final responsibility for the reconciliation of dividend objectives with the proposals of lender to restrict payment of dividends.

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Term Lending

The primary task of a lending institution before granting a term loan is to assure itself that the anticipated rise in the income of the borrowing unit would materialise, thus providing the necessary funds for repaying the loans according to the terms of amortization. The liquidity of term loans depends not so much on the short-run saleability of the goods and commodities as on the increased income of borrowing units resulting from a higher level of utilisation of existing installed capacity. For assessing the risks involved in term lending, the normal criteria used for judging the soundness of short-term loans are often unreliable and inadequate. The methods of analysis and the standard to be adopted for appraisal of term loans are more similar to investment decisions than to short-term lending. Appraisal of term-loans requires a dynamic approach involving *inter alia*, a projection of future trends of output, sales, estimates of costs, returns and flow of funds. Appraisal of term loans depends to a large extent on estimates of forecasts. Its purpose is not to set down a categorical statement of the long-range prospects of an industrial unit but only to provide broad guide outlines to the financial institutions.

The practice of making an appraisal of term loan applications on modern scientific lines has not made much progress in India. This is partly due to the fact that such loans are given mainly by the larger banks to highly credit-worthy constituents and hence no elaborate enquiry is considered necessary. The need for such appraisals is now being increasingly felt with the expansion of term lending. There cannot be a fixed or standardised approach to appraisal. Numerous and diverse elements enter into the process. It is difficult to have a cut and dried formula with the help of which a loan proposal can be considered straight-away as acceptable or unacceptable. While the same set of factors is taken into consideration in the scrutiny of individual applications, the weightage given

to the several factors varies from case to case. The more important factors among these are: the type of organisation and activity of the borrowing unit, the nature of its product and its market potentiality, its size, the quality of its management, soundness of financial position, the amount and term of the loan required and its repayment schedule.

Financial institutions are usually inclined to adopt the criterion of profitability rather than that of 'development' in extending term loans. In other words, they are concerned mainly with the commercial profitability of a project as determined by the level of prospective profits and its ratio to invested capital of the borrowing unit and not with its broad economic significance or importance in the development of the resources of the economy. Commercial profitability could sometimes be more apparent than real. The extent of State support and the manner in which it is made available in the form of import controls, protective duties, subsidies, tax rebates and other concessions have considerable bearing on the profit prospects of certain industries. To the extent that the profitability of a project is conditional in the continuance of such support, appropriate allowance has to be made by the lending institution in the appraisal of the project. A number of other aspects of the State policy such as transport rates, prices and wage limits, export promotion, exchange regulations require due attention of the lending institutions while appraising term loans.

There are four broad aspects of appraisal, namely, technical feasibility, economic feasibility, managerial competence, and financial or commercial feasibility. A brief account of each of these aspects follows.

Technical feasibility. The examination of this aspect requires a detailed assessment of the goods and services needed for the project—land, housing, transportation, raw materials, supplies, fuel, power, water, etc. The financial institution has to satisfy itself that these requirements are available. Where they are not domestically available and have to be imported, conditions in the foreign market as well as government policy at home in terms of availability of foreign exchange call for a review. The location of the project is highly relevant to its technical feasibility and hence special attention is paid to this feature. In fact, the accessibility to the various resources has meaning only with reference to location. Another important feature of technical feasibility relates to the type of technology to be adopted for the project. In case new technical processes are adopted from abroad, attention is paid to the differences in conditions. The dangers of hasty adoption of new techniques are quite substantial in an underdeveloped country. It is, therefore, desirable for lending institutions to make use of the services of technical personnel.

Economic feasibility. This aspect relates to the determination of the extent of absorption of the output of the new unit or the additional pro-

duction from an established unit at given prices. In other words, it takes account of the total output of the product concerned and the existing demand for it with a view to establishing whether there is an unsatisfied demand for the product. Two general indicators of the existence of unsatisfied demand are the price level and the prevalence of controls. It is necessary to know specifically whether the unsatisfied demand is ephemeral or genuine. The study goes beyond immediate prospects. Possible future changes in the volume and pattern of supply and demand will have to be estimated in order to assess the long-run prospects of the industry as well as earning capacity of the unit.

Projection or forecasting of demand is a complicated matter though of vital importance. The demand for a product is affected by a variety of factors and it may be difficult to take account of all these. If information concerning the demand for a product in the past is available, projections of demand over a period of years can be made on the basis of assumptions concerning future trend of all prices and incomes particularly in the case of consumer goods industry. The projection of demand for intermediate goods (goods used as inputs for further production) and capital goods is more complicated because the demand for such goods is affected by changes in incomes and prices only indirectly. Often intermediate and capital goods have multiple uses, being needed in several lines of production, and hence it is necessary to take into account inter-industry relationships also.

Estimations of demand can never be wholly accurate or absolutely reliable; they can at best be considered as approximations.

Managerial competence. The confidence of the lending institution in repayment prospects of a loan is largely conditioned by its opinion of the borrowing unit's management. It has, therefore, been remarked that appraisal of management is the touch stone of term credit analysis. Where the technical competence, administrative ability, integrity and resourcefulness of the management are well established, the loan application gets the most favourable consideration.

Financial feasibility. The financial appraisal, by and large, is designed to seek answers to the following : (a) Whether the estimates of the cost of the project fully cover all items of expenditure and are realistic. (b) Whether the sources of finance contemplated by the sponsors of the project will be adequate and the necessary finance will be available during the period of construction as per their schedule. (c) What is the likely impact of the project on the level of production, sales, net earnings, borrowings, costs, etc. of the borrowing unit ? Or, when can the project be expected to break-even (with offsetting expenditure) and start yielding profit ? (d) What time should be fixed for starting of repayment over a period to be

determined in the light of the financial capacity of the borrowers arising from increased output and income ?

The magnitude of the valuable surplus and other cash accruals to meet the interest and principal repayments (called as debt service coverage) is an essential point for investigation in deciding the period of amortisation.

The financial position of the concern has to be examined during the currency of the loan. For having a proper perspective of the financial position of the concern, it is not sufficient to consider a single year's performance as revealed in the balance sheet and profit and loss account. On the other hand, a dynamic view has to be taken of the organisation in the next few years.

Term lending institutions follow different methods in obtaining the financial data. Some use comprehensive application form calling for particulars of different aspects of the projects presented for financing, others use a simple preliminary application form to judge whether the schedule of the application is *prima facie* feasible and later on follow-up by a comprehensive form. Quite often, the lending institutions adopt the interview method for eliciting as many details and particulars of the schedule as possible.

The basic data required for a financial analysis can be grouped under the following heads :

1. Cost of the project (Exhibit 1).
2. Cost of production and profitability (Exhibit 2).
3. Cash-flow estimates during the currency of loan (Exhibit 3).
4. Pro-forma balance sheets (Exhibit 4).

Term lending institutions have to critically analyse the data obtained from the borrower with a view to ensuring that : (i) the estimated cost of the project is reasonable and the project has a fair chance of materialising; (ii) the financial arrangement is comprehensive without leaving any gaps and ensures cash availabilities as and when needed; (iii) the estimates of earnings and operating costs are as realistic as circumstances permit; and (iv) the borrower's repaying ability, as judged from the project operations, exists with a reasonable margin of safety.

Security against term loans. Considerations of security form an important basis of lending. In fact, they constitute necessary adjunct to financial appraisal. Lending institutions have to examine the loan proposals from the point of view of nature and extent of security offered. Sometimes, there is a greater reliance on security due to inadequate financial appraisal, which in its turn may be due to non-availability of the necessary data. The security cover of the loan should, however, not be regarded as a substitute for an adequate financial assessment.

Security considerations are of particular importance in less developed countries like India where information on the character, integrity and credit-worthiness of the borrowers is not readily available and much ground work has yet to be done in the establishment of credit information bureaus. A prudent term lending institution, therefore, secures its loan by adequate collateral and, where necessary, guarantees. It also embodies in the loan agreement suitable protective and restrictive covenants such as maintenance of certain minimum financial standards, supplying to the lender adequate financial information, earlier repayment of loans under certain conditions, restriction on the payment of dividend and any other payments like managing agency or selling agency commission. Taking of adequate security infuses the necessary responsibility in the borrower. A general tendency exists among term lending institutions in India to depend more on the collateral for the repayment of loans than on the integrity and policy of management and the borrowing concern's past and prospective earnings.

The types of security generally accepted by the term lending institutions are the existing industrial assets as well as those to be acquired out of the granted loans. Most financial institutions also obtain, as a measure of caution, the personal guarantees of the directors/managing agents since the future of the concern is largely dependent on the efficiency of management.

While approving an application for term loan, certain restrictions are incorporated in the loan agreement with a view to protecting the interests of the lending institutions and ensuring the maintenance of soundness of the financial position of a concern. The borrower may be required to agree that the loan in question will receive the higher priority for repayment. Provision may be made that the borrower should not borrow further sums on long-term basis without the consent of the lending institution. A statement may also be made that debt-equity ratio should not exceed a specific limit. Sometimes, the agreement specifies conditions regarding the maintenance of minimum working capital so as to possess enough cushion for withstanding unexpected financial shocks such as fall in prices. At other times, in order to ensure that the borrower is not short of funds for meeting the current obligations including the servicing of the loans, it may be provided that the selling commission or the managing agency commission, if any, will not be disturbed during the currency of the loan, except after meeting the interest on and instalments of the loan. Similarly, the borrower may be required not to declare dividend for specified periods or beyond an agreed rate. These restrictive covenants are considered necessary in case of term-loans which run over a period of years for giving protection to the lending institution.

Exhibit 1

Cost of the Project

Period required for completion.

	Already incurred		To be incurred		Total Rupees and Rupee equivalent
	In Rupees	In Rupee equivalent of foreign exchange	In Rupees	In Rupee equivalent of foreign exchange	
Land (including development expenses)					
Buildings					
Machinery and Plant					
Spare parts					
Insurance, freight, duty and transportation to site					
Erection charges					
Technical know-how/consulting/engineering fees					
Intangibles					
Preliminary expenses					
Pre-operative expenses (upto start of normal production)					
Interest during construction					
Allowance for unforeseen costs					
Total					
Net Working capital requirements					
Grand Total					

Note:—(1) Details and/or supporting documents may be required to be furnished wherever possible.

Note:—(2) Information may be furnished on the phasing of the expenditure on the project over a period of years in a separate statement, if necessary.

Exhibit 2
Cost of Production and Profitability

	Construction ¹			Operation		
	First year (1)	Second year (2)	Third year (3)	First year (4)	Second year (5)	Third year (6)
Rs		Rs	Rs	Rs	Rs	Rs
Production (Grade and Quantity) : (Pro- duction in the initial period should be assumed at a reasonable rate of utilisation of capacity, increasing gradually to attain estimated full capacity in subsequent years)						
Raw materials (separately for each item of raw material indicating also the quantity required per unit of finish- ed product and price at which it will be obtained)						
Power and fuel						
Consumable stores						
Repairs and maintenance						
Labour						
Factory supervision and overheads						
Administrative overheads (<i>viz.</i> , office salaries, insurance, rent, travelling and other expenses, etc.)						
Selling and advertising expenses						

Interest—(indicate also rates)

(a) On bank borrowings for working capital

(b) On medium- and long-term borrowings

Depreciation (rates also should be given for all the us)

Managing Agents' / Managing Directors' /

Secretaries and Treasurers' Remu-

neration—(indicate also rate)

Other expenses

Cost of production

Sales—(indicating prices for each product line)

Other income

Operating profit

Less

Taxation

Net Profit

Ratio of sales to total capital employed

Ratio of operating profit to sales

Ratio of profits (before taxes with interest on long-term debt added back) to total capitalisation, i.e., long-term debt plus equity

Note: Details and/or supporting documents should be supplied wherever possible and particularly regarding the source and rate of raw materials, power, fuel, etc., labourers and other personnel employed, and the basis for the selling prices assumed.

¹ In the case of an existing company in operation, existing sales, etc. will continue till new operations start.

Exhibit 3
Cash Flow Estimates

(Quarterly/Half-yearly estimates may be given during construction period)

	Construction			Operation		
	First year (1)	Second year (2)	Third year (3)	First year (4)	Second year (5)	Third year (6)
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Sources of funds :</i>						
Net profit (before taxes with interest added back but after depreciation and development rebate reserve)						
Share capital increase						
Increase in long-term borrowings						
Increase in short-term borrowings						
Depreciation provisions						
Development rebate reserve						
Others (specify)						
Total						

Application of funds:

Fixed assets and capital expenditure

Current assets (such as book debts,
closing stock, bills receivable, etc.)Repayment of long-term borrowings
(including deferred payments)

Repayment of short-term borrowings

Interest

Other assets

Taxation

Other expenses

Total

Opening balance of cash

Surplus/deficit between sources and
application of funds

Closing balance of cash

Exhibit 4

Pro-Forma Balance Sheet Estimates

	Construction			Operation		
	First year (1)	Second year (2)	Third year (3)	First year (4)	Second year (5)	Third year (6)
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Capital and Liabilities						
Share capital						
Reserves and surplus						
Long-term debt						
Current liabilities						
Total						
Assets						
Gross fixed assets						
Less : Depreciation						
Current assets						
Investments						
Intangible assets						
Others						
Total						
Debt-equity ratio :						
Current ratio :						

CASE STUDIES

17.1. ANUPAM SUGAR MILLS LIMITED

In August 1960, Mr. Bose, the General Manager of the Bharatiya Industrial Finance Corporation was considering the application of Anupam Sugar Mills Limited, a public limited company, for a loan of Rs 15 lakhs, of which about Rs 6 lakhs were required in foreign exchange. Anupam Sugar Mills Limited had moved this application for raising funds to implement a lift irrigation scheme covering 6,000 acres of land to ensure the availability of sugarcane for its sugar factory at Akbargarh in Muzaffarnagar District (Uttar Pradesh).

The sugar factory had a sugarcane crushing capacity of 1,000 tons per day. It was completed in December 1958 at a total cost of about Rs 153 lakhs (including Rs 29 lakhs as the cost of land). Its promoters owned a large tract of land (4,200 acres) which was given over to the company in exchange for equity shares worth about Rs 29 lakhs. The machinery was imported on deferred payment terms, guaranteed by the Standard General Insurance Company. The capital cost of Rs 153 lakhs was financed by raising share capital amounting to Rs 60 lakhs, a loan of Rs 40 lakhs from the Hindustan Investment Corporation, deferred payments of Rs 33 lakhs and unsecured loans from banks, managing agents and friends amounting to Rs 20 lakhs. The State Government took an active interest in the promotion of the factory by subscribing to its share capital to the extent of Rs 20 lakhs.

The original intention of the company was to cultivate its own land of 4,200 acres and other surrounding areas in order to ensure the availability of cane. However, due to financial difficulties, the scheme could not materialize and the company had to rely on the supply of cane from outside. When its crushing operations began in January 1959, it purchased cane from cultivators who were 40 to 50 miles away from the factory. But the supplies of cane were intermittent, resulting in frequent stoppages, because of severe competition from manufacturers of gur and khandsari. Moreover, due to the long distance over which the cane had to be hauled, the company had to bear heavy transport charges, on an average of Rs 7 per ton of cane, over and above the fixed price of Rs 52 per ton. It also suffered a fall in sugar recovery due to the drying up of cane.

From the working results of the factory for 1958-59 (half season only) and 1959-60 crushing seasons (given in Exhibit 1), the General Manager of Bharatiya Industrial Finance Corporation observed that the factory crushed only 75,656 tons of cane during the entire 1959-60 season due to the shortage of cane. The plant itself was reported to have worked satisfactorily to have often crushed more than 1,000 tons a day.

The company proposed to implement a lift irrigation scheme in order to eliminate the difficulties regarding the supply of cane. The scheme covered a total of 6,000 acres of land for the cultivation of cane, including 2,500 acres belonging to the company out of its total holding of 4,200 acres. The company had under cultivation about 600 acres of its own land where cane was being grown by means of well-irrigation. The 6,000 acres were within a maximum range of 3 miles from the factory. The necessary water was to be lifted from 65 feet to 85 feet from the nearby Hindan River. A cooperative society was envisaged to be formed by the cultivators who were to get the supply of water from the company. Members of this society were to be bound by an agreement to sell all their cane to the sugar factory. The lands were to be fed by two water pipe lines, 4,000 feet and 16,000 feet long, rising from the river bed and operated by nine pump sets (including stand-by sets). Water was to be taken by canals following generally the contour lines. Sub-channels were to be taken from the canals to feed the fields. The pump sets were intended to be fed by diesel engine generators located at the factory. The generated power was envisaged to be stepped up by a transformer and after transmission could again be stepped down to feed the pump-motors.

At the instance of the company the chief sugarcane officer of a reputable sugar factory had visited the site and was satisfied with the feasibility of the scheme in general. The scheme had also been favoured by a retired engineer of the State Government.

Details of the Project

Location. It was intended to locate the diesel engine generators in the factory and the pumps in the river bank half a mile up stream at the confluence of the rivers Hindan and Kali where there was long deep pool of water throughout the year. The diesel engine generators were to be located within the factory so that the chief engineer of the sugar factory could look after their operation and maintenance. The existing 11 KV transmission lines were to serve till the power grid supply was made available to the factory.

Plant and machinery. A firm quotation had been obtained from the Machinery Suppliers for the supply of diesel engine generators, transmission lines, and turbine pumps after a study of the site conditions by one of the engineers of the firm. Services of two engineers were to be made available by the firm for erection of the machinery. Diesel generating sets, turbine motors and auto-transformer starters were to be imported; the Machinery Suppliers assumed responsibility for obtaining the equipment provided foreign exchange arrangements were made by the company.

Schedule of construction. Assuming that orders were placed by September 1960, delivery of machinery could be expected by July 1961 and ins-

tallation completed by October 1961. Sowing operations were to start soon after and, allowing for 12 to 15 months' growth, harvesting could start by November 1962/January 1963, i.e., in the middle of the 1962-63 crushing season.

Raw materials. No difficulty was anticipated in obtaining the necessary requirement of seeds and manure for cultivation under the lift irrigation project.

Labour. As the diesel engine sets were proposed to be located within the factory and only the pump sets on the bank of the river, a total labour force of 24 was considered adequate. The chief engineer of the factory with his assistant engineers could have overall control of the lift irrigation machinery. The labour required on farms was mostly agricultural and was expected to be available locally.

Essential services. 900 KW of power was expected to be developed by diesel engine generators and transmitted to the riverside pump house. The daily requirement of about 17 million gallons of water could be pumped from the river. Fuel oil to run the diesel engines was available locally.

Cost of project. The total cost of the lift irrigation scheme was estimated at Rs 35 lakhs as follows :

	Rs in lakhs
Generators, transmission lines and pumps	9.40
Rising mains	6.70
Civil construction, roads, channels and erection expenses	4.40
Pre-operative expenses	2.00
Contingencies	1.00
	<hr/>
	23.50
Working capital for cultivation	11.50
	<hr/>
	35.00
	<hr/>

The estimated cost of generators, transmission lines, pumps and rising mains was based on the Machinery Suppliers' quotation. It included items worth Rs 6 lakhs (including contingencies) to be imported. The provision for rising mains included also the cost of laying the same. An amount of Rs 4.40 lakhs was provided for civil construction, roads, channels and erection expenses. Pre-operative expenses represented mainly interest on additional borrowings for this scheme during the initial cultivation period. Working capital for cultivation (Rs 11.50 lakhs) represented nearly one year's expenses for cultivation of 1/3 of the company's own lands on a rotation basis. It was expected that the cultivators would be able to meet their working capital requirements from the district co-operative banks.

Means of financing. The company's financial requirements upto 1962-63 (the year when the lift irrigation scheme was expected to be completed) was estimated at Rs 92.20 lakhs as follows :

	Rs in lakhs
Lift irrigation scheme	35.00
Deferred payments to Machinery Suppliers	33.70
Additional working capital for sugar mill	16.00
Estimated cash shortfall in operations during 1960-61 and 1961-62 seasons	7.50
	<hr/> 92.20 <hr/>

This amount was proposed to be financed by :

Issue of share capital	20.00
Further loan from HIC	15.00
Loan from BIFC	15.00
Loan from Standard General Insurance Company Ltd. against deferred payments' guarantee	22.50
Borrowings from banks or others for working capital	12.00
Cash accruals of 1962-63	10.00
	<hr/> 94.50 <hr/>

Share capital. It was proposed to issue further equity share capital of Rs 20 lakhs and the directors had agreed to make their own arrangements for taking up and/or underwriting the same.

Loans from HIC and BIFC. Hindustan Investment Corporation had already given a loan of Rs 40 lakhs on a first mortgage of fixed assets. It was being approached for an additional amount of Rs 15 lakhs and Bhartiya Industrial Finance Corporation was also requested to provide a loan of Rs 15 lakhs. A joint mortgage of fixed assets, present and future, in favour of HIC and BIFC on *pari passu* basis was considered necessary as security for the proposed loans. It was hoped that HIC would agree to this. The approval of the Standard General Insurance Company to this arrangement was also necessary. No fixed assets were expected to cover both amounts more than two times. Repayment of the first HIC loan of Rs 40 lakhs was scheduled to start from July 1961 in annual instalments of Rs 2 lakhs, increasing gradually in later years. In view of the company's liabilities and its financial position upto 1962-63, HIC was to be approached to postpone its payment schedule till after the 1963-64 crushing season when it would be possible to start repayments of HIC at, say, Rs 4.5 lakhs per year. Repayment of the BIFC loan could begin after a grace period of 3 years, i.e., from 1963-64 onwards in 10 equal annual instalments.

Loan from Standard General Insurance Company. Deferred payments due to Machinery Suppliers, amounting to Rs 33.70 lakhs, were to be repaid

in three equal annual instalments, i.e., in March 1961, 1962 and 1963. The General Manager of the BIFC thought that two of these instalments would have to be met by the guarantors (Standard General Insurance Company) whose security would be second charge on fixed assets.

Working capital. Existing credit facilities available to the sugar factory were: Rs 50 lakhs against pledge of sugar stocks; Rs 35 lakhs against stores and sugarcane; a clean overdraft of Rs 3 lakhs from the Indian National Bank Ltd.; and further overdraft facilities of Rs 10 lakhs, guaranteed by the State Government, and Rs 3 lakhs guaranteed by Jupiter General Insurance Company, from the Central Bank of India. It was expected that additional working capital of Rs 16 lakhs would be required for the crushing operations of the factory. Of this, it could be possible for the company to borrow about Rs 12 lakhs from banks.

Cash accruals. Due to the improved cane supply position, the working results during 1962-63 were expected to yield gross cash accruals of about Rs 10 lakhs (Exhibit 6).

Market. According to the revised target fixed under the Second Plan, the installed capacity of the sugar industry at the end of 1960-61 was expected to be about 25 lakh tons. Actual production of sugar in India increased from about 10 lakh tons in 1948-49 to about 20 lakh tons in 1958-59 and it was estimated to have exceeded 25 lakh tons in 1959-60 season. This larger increase in production during this season was partly due to an announcement by the government of an incentive scheme by which a 50% rebate in the basic excise duty was granted on all sugar produced during the 1959-60 season in excess of the average production of the last two seasons. This rebate enabled sugar factories to increase production by drawing cane at higher prices in competition with khandsari and gur manufacturers and to continue working till late in the season.

Consumption in the future was estimated to rise at a faster rate due to an increasing preference for white sugar and an improvement in the standard of living. The Planning Commission had estimated the demand to rise to 30 lakh tons by 1965-66 and accordingly a target capacity of 32.5 lakh tons had been fixed. In spite of rising production, sugar was in short supply in some parts of the country; this was evident from the premium of the market price over the control price. The sugar control was exercised mainly in the form of government control on releases.

Profitability. The estimates of cost of cultivation and profitability of the company as a whole (Exhibits 3 to 6) were based on the following assumptions:

The company proposed to raise a sum of Rs 50 lakhs (Rs 20 lakhs in ordinary shares and Rs 30 lakhs in loans). Most of the amount obtained

through the issue of ordinary shares was intended to be utilised for meeting the requirements of sugar mill. The cost of the irrigation project was envisaged to be met from loans.

The project was intended to make water available for irrigating 6,000 acres of land—2,500 acres of the company and 3,500 acres of the cultivators. Making provision for the time taken from cultivating to harvesting in any one season, cane could be available from one-third of the acres, i.e., from 2,000 acres. This acreage, on an average, was divided in the proportion of 25 : 35 between the company's and the cultivators' land.

The entire cost of working the irrigation project was attributed to the irrigated acreage belonging to the company as being a fixed overhead. It was expected to be met from the company's funds irrespective of the fact that the company would be able to sell the water to the cultivators. It had been assumed that all the cultivators' land covered by irrigation scheme would obtain water from it.

As cane was going to be obtained from shorter distances, sugar recovery was likely to go up. The Profitability Statement (Exhibit 5) allowed for a rise of one per cent in sugar recovery (i.e., from the existing 10 per cent to 11 per cent in 1963-64).

The yield from the irrigation scheme had been taken at 35 tons per acre. This was based on enquiries made from the persons conversant with the working of lift irrigation schemes.

The present fixed rate payable for cane delivery at the factory was Rs 52 per ton (as shown in Exhibit 3). It was estimated that the cost of sugarcane grown on the company's own 4,200 acres would decrease from Rs 56 per ton in the first year (1962-63) to Rs 52 per ton in the third year (1964-65) and would continue to decline gradually thereafter as interest and depreciation charges were reduced.

Assuming a yield of 35 tons of cane per acre of land under lift irrigation and 25 tons per acre under well-irrigation, the company was expected to rely for about 45 per cent of its requirements of cane for normal working on outside sources as at present (Exhibit 4). The amount of cane to be thus purchased depended entirely on the yield of cane from the land covered by this scheme. On this basis, the average cost of cane obtained from all sources was expected to decrease gradually from Rs 58.65 per ton in 1961-62, i.e., five years after coming of the scheme into operation.

For the next two crushing seasons and for a part of the third also, the sugar factory was going to depend on cane obtained from long distances and, consequently, the company was expected to incur substantial

operating losses (Exhibit 5). In 1963-64, the first full season when cane would be available from the farms covered by this scheme, it was expected that sugar factory would be able to work for 140 days, crushing 1,000 tons per day with a recovery of 11%. The selling price of Rs 1,110 per ton was the ex-factory price of sugar fixed by the government. No credit had been taken into account for the rebates given by the government as incentives to sugar factories.

The operating profit (Exhibit 6) was expected to increase from Rs 13.69 lakhs in 1963-64 to Rs 16.10 lakhs in 1966-67. Correspondingly, the percentage of operating profit to sales was expected to go up from 5.9 per cent to 7.3 per cent and the percentage of net profit plus interest to capital employed (equity plus fixed debt) was expected to rise from 10.2 per cent in 1963-64 to 12.5 per cent in 1966-67. However, the company was going to have accumulated losses mainly comprising arrears of depreciation amounting to nearly Rs 50 lakhs by the end of 1962-63 so that by 1966-67, there was going to be a carried forward loss of Rs 11.73 lakhs to be written off after providing Rs 22 lakhs for development rebate reserve.

Mr. Bose found from the Statement of Cash Accruals (Exhibit 6) that from 1963-64 onwards the company would be in a position to meet its obligations and gradually reduce its borrowings. Annual cash accruals, expected to be about Rs 23 lakhs from 1963-64 onwards were likely to cover payments of HIC and BIFC loans nearly four times.

The management estimated the break-even point at about 80 per cent of its capacity.

The government had permitted the company to lift 4,000 million cubic ft. of water per annum from the river which was thought to be more than adequate for its performances. Consent for capital issues and import licences had yet to be obtained.

Bhartiya Industrial Finance Corporation

Bhartiya Industrial Finance Corporation was established in 1954 as a development financing institution. Generally, it assisted in the creation, expansion and modernization of industrial enterprises. It provided finance in the form of long or medium term loans and equity participations. In addition to the sponsoring and underwriting of new corporate issues, it employed technical, economic and financial experts who thoroughly screened the applications for financial assistance. The corporation required a good deal of information for examining the viability of a project before it made commitment. Its industry-wise distribution of financial assistance in 1959 indicated that industries like chemicals, automobiles, iron and steel, paper and pulp had individually accounted for more than

10 per cent of the total financial assistance. Its commitment to the sugar industry, however, amounted to only about 5 per cent of the total financial assistance. Mr. Bose had before him the selected items of the company's Balance Sheets of the last two years (Exhibit 2) and also the Proforma Balance Sheets of the company from 1960-61 to 1966-67 (Exhibit 5).

Exhibit 1

Anupam Sugar Mills Limited

Season	Total cane crushed (tons)	Sugarcane recovery (percentage)	Sales and stock of Sugar (Rs in lakhs)	Profit (loss) before dep- reciation (Rs in lakhs)
1958-59	26,715	10.36	27.75	(3.96)
1959-60	75,656	10.10	66.60	2.50* (as on 31-3-60)

*Indications were that the profit would be wiped out by the end of June, 1960.

Exhibit 2

Anupam Sugar Mills Limited

Selected items of Balance Sheets as on

(Rs in lakhs)

				30-6-58	30-6-59	31-3-60
<i>Capital:</i>						
Ordinary	..	..	..	44.9	45.6	46.4
Preference*	..	..	..	14.4	14.4	14.4
<i>Loans:</i>						
Hindustan Investment Corporation				32.5	40.0	40.0
Banks	..	..	..	3.0	19.0	55.3
Deferred payments	..	..		41.2	33.7	33.7
Fixed Deposits	..	..	..	1.6	3.5	5.6
Managing Agents	..	..		1.2	4.4	2.6
Sundry Creditors	..	..	..	5.6	8.4	26.0
				144.3	169.0	224.0
<i>Fixed Assets:</i>						
Gross	..	..	..	123.0	152.9	156.6
Depreciation	..	..	..	0.6	1.3	1.3
				122.4	151.6	155.3
<i>Current Assets:</i>						
Stock	..	..	..	—	4.2	45.5
Stores	..	..	..	4.2	4.8	6.0
Sundry Debtors		..	..	9.5	1.8	9.3
Crops-in-progress		..	..	2.1	1.6	1.3
Cash	..	..	..	0.5	0.1	4.1
Miscellaneous Expenses and Losses			..	5.6	4.9	2.5**
				144.3	169.0	224.0

* Contingent liability for arrears of dividend on preference shares was Rs 1.52 lakhs in 1958, Rs 2.48 lakhs in 1959 and Rs 3.13 lakhs upto 31-3-1960.

** It was expected that the total loss carried forward on 30-6-1960 (including depreciation provision for 1958-59 and 1959-60 amounting to Rs 17 lakhs) would be Rs 5 lakhs.

Exhibit 3

Anupam Sugar Mills Limited

Cost of cultivation per acre and cost per ton of sugarcane grown

	1962-63 (half season)	1963-64	1964-65	1965-66	1966-67
Extent of company's own land yielding cane (in acres) ..	400	800	800	800	800
Acreage yield of cane per acre (in tons) ..	35	35	35	35	35
	Rs	Rs	Rs	Rs	Rs
Cost of cultivation per acre :					
Ploughing and land treatment	85	85	85	85	85
Purchase of seeds ..	100	100	100	100	100
Planting of seeds ..	25	25	25	25	25
Cost of manure and manuring operations ..	520	520	520	520	520
Water-lifting charges and channeling ..	510	510	510	510	510
Harvesting ..	150	150	150	150	150
Depreciation on equipment ..	330	290	250	210	180
Interest on borrowings ..	250	220	190	160	130
	1970	1900	1830	1760	1700
Cost per ton of sugarcane grown (Rs)	56	54	52	50	49

Exhibit 4

Anupam Sugar Mills Limited

Estimated cost per ton of sugarcane crushed in 1960-61 to 1966-67 seasons

Crushing season	Total cane required (tons)	Supply from own farms to be irrigated		Supply from existing own farms		Supply from ryots' farms to be irrigated		To be purchased as at present		Average cost per ton of cane (Rs)
		Quantity (tons)	Cost per ton (Rs)	Quantity (tons)	Cost per ton (Rs)	Quantity (tons)	Price per ton (Rs)	Quantity (tons)	Price per ton (Rs)	
1960-61	80,000	..	..	5,000	52	..	..	75,000	59	58.56
1961-62	90,000	..	..	5,000	52	..	..	85,000	59	58.65
1962-63	1,20,000	14,000	56	5,000	52	21,000	52	80,000	59	57.13
1963-64	1,40,000	28,000	54	5,000	52	42,000	52	65,000	58	55.20
1964-65	1,40,000	28,000	52	5,000	52	42,000	52	65,000	58	54.80
1965-66	1,40,000	28,000	50	5,000	52	42,000	52	65,000	58	54.40
1966-67	1,40,000	28,000	49	5,000	52	42,000	52	65,000	58	54.20

Exhibit 5

Anupam Sugar Mills Limited

Cost of production and profitability per ton of sugar : 1960-61 to 1966-67

Year ending June 30	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
(in thousands of rupees)							
Average rate of crushing (tons per day)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total duration of season (days)	80	90	120	140	140	140	140
Total cane crushed (tons)	80,000	90,000	1,20,000	1,40,000	1,40,000	1,40,000	1,40,000
Sugar recovery	10 %	10 %	10.5 %	11 %	11 %	11 %	11 %
Sugar produced (tons)	8,000	9,000	12,600	15,400	15,400	15,400	15,400
Cost of production per ton of sugar :							
Sugarcane (average cost as per Exhibit 4)	Rs 586	Rs 586	Rs 543	Rs 502	Rs 502	Rs 502	Rs 502
Cane cess (Rs 5 per ton)	50	50	48	46	46	46	46
Consumption of stores including repairs & maintenance	46	43	35	25	25	25	25
Power and fuel	40	37	30	22	22	22	22
Salaries and wages	50	50	45	40	40	40	40
Administrative and selling expenses	36	34	30	25	25	25	25
Excise duty	291	291	291	291	291	291	291
Interest	62	57	42	36	35	34	33
Depreciation	122	98	70	51	45	41	36
Managing Agents' remuneration	..	..	..	7	8	8	9
Cost of production per ton of sugar	1,283	1,246	1,134	1,045	1,039	1,034	1,029
Selling price per ton of sugar	1,110	1,110	1,110	1,110	1,110	1,110	1,110
Operating profit (loss) per ton	(173)	(136)	(24)	65	71	76	81
% of operating profits to sales	..	..	..	5.9 %	6.4 %	6.9 %	7.3 %

Exhibit 6

Anupam Sugar Mills Limited

Statement showing Distribution of Profits and Cash Accruals

	(in thousands of rupees)						
	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
Year ending June 30							
1. Gross profit/(loss) before interest, depreciation and managing agents' remuneration	88	171	1,575	2,856	2,800	2,750	2,700
2. Add: Water charges recoverable from ryots	..	..	180	360	360	360	360
3. Total gross profit	88	171	1,755	3,216	3,160	3,110	3,060
4. Interest	500	517	736	629	690	655	615
5. Depreciation	977	884	1,137	1,010	895	795	700
6. Managing agents' remuneration	..	..	..	108	125	125	135
7. Operating profit/(loss) subject to development rebate reserve and taxation	(1,389)	(1,230)	(118)	1,369	1,450	1,535	1,610
8. Development rebate reserve	..	..	..	1,369	831	..	..
9. Taxation	..	..	..	..	..	..	..
10. Net profit for the year	..	..	..	..	619	1,535	1,610
11. Total losses carried forward (Rs 22 lakhs on 30-6-1960)	(3,389)	(4,819)	(4,937)	(4,937)	(4,318)	(2,783)	(1,173)
12. Gross cash accruals (deficit for the year)	(412)	(346)	1,019	2,379	2,345	2,330	2,310
% of net profit (before development rebate) plus interest to capital employed (equity + fixed debt)	..	..	..	10.2 %	11.2 %	12.2 %	12.5 %

Exhibit 7

Anupam Sugar Mills Limited

Proforma Balance Sheets: 1960-61 to 1966-67

	(In thousands of rupees)						
	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
CAPITAL AND LIABILITIES							
Share Capital—Ordinary	6,636	6,636	6,636	6,636	6,636	6,636	6,636
Preference	1,439	1,439	1,439	1,439	1,439	1,439	1,439
Reserve and surplus	..	..	..	..	..	..	1,027
Loans from HIC	5,500	5,500	5,500	5,050	4,600	4,150	3,700
Loans from AIFC	1,500	1,500	1,500	1,350	1,200	1,050	900
Loans from Standard General Insurance Co. Ltd., against deferred payment guarantee	..	1,120	1,130	52,20	..	..	..
Deferred payments due to machinery suppliers	2,250	1,130	..	..	..	..	..
Bank borrowings for working capital	3,882	4,582	5,082	5,082	4,582	3,582	2,582
Bank overdraft	1,651	1,651	1,651	1,651	1,651	1,651	1,651
Fixed deposits	556	556	556	556	556	556	556
Advances from managing agents	260	260	260	260	260	260	260
	23,674	24,374	24,874	23,154	20,924	19,324	18,751
ASSETS							
Net fixed assets	14,853	14,319	13,182	12,172	11,277	10,482	9,782
Net current assets (including crops-in-progress)	3,864	4,864	6,414	7,214	7,214	7,214	7,214
Cash and bank balances	1,368	372	341	200	315	1,045	1,755
Profit and Loss Accounts—debit balance	3,589	4,819	4,937	3,568	2,118	583	
	23,674	24,374	24,874	23,154	20,924	19,324	18,751

18

Capital Budgeting

PLANNING OF CAPITAL EXPENDITURES

The decisions regarding capital expenditures have far-reaching effects on the success or failure of an enterprise. Once acquired, capital assets cannot be disposed of except at a substantial loss. If purchased on a long-term credit basis, a continuing liability is incurred over a long period of time. If increased earnings do not result from the purchase of the additional capital assets, the ability of the company to discharge its financial obligations may be affected adversely. Expansion of capital facilities by means of the sales of shares dilutes ownership of the company and if not carefully planned and controlled, it can result in the loss of voting control by management and in an inadequate return upon its invested capital, thereby reducing the market price of equity shares.

The amount and wisdom of expenditure on capital assets have an important effect upon future operating costs. The balancing of capital expenditures against estimated savings in future operating costs requires careful analysis of both the engineering and financial aspects of the company's operations. A careful balancing of facilities at each stage of the productive process is necessary to avoid higher operating costs and delay caused by facility bottleneck and the freezing of capital in idle equipment. A lack of balance among productive facilities also burdens the profit and loss account with added depreciation allowances, insurance and other costs.

The process of corporate planning and forecasting involves four basic steps: (i) economic forecast; (ii) sales forecast; (iii) production forecast; and (iv) financial forecast. Here we are concerned mainly with the discussion of the financial forecasting and planning which ties together the other three estimates—economic, sales and production—by providing a common denominator of rupees. If capital expenditure over the next one, three, five, ten or fifteen years is anticipated, how much additional capital—fixed and/or working—will be required? How will the company's bal-

ance sheet and profit and loss account look like after the anticipated period ?

Capital expenditures must be integrated into the corporate financial plans. The economic justification for a capital expenditure programme requires a long-term estimate of profits which in turn involves projection of sales and costs of operation over a period of years. Accordingly, long-range financial planning becomes essential for a company that wishes to grow. The company has to establish objectives and goals as the part of a master plan for its survival and/or growth. For growth to become a reality, management should initiate action on a time schedule which will direct capital into projects for raising the overall returns on investment.

Long range planning for capital expenditures is essential due to the following reasons : (i) It helps in fitting yearly corporate expansion into an orderly plan of growth by adapting capital expenditures to anticipated sales requirements. (ii) It assists in testing the profitability of capital expenditures over a period of time as against in the next following year. (iii) It facilitates in contracting for plant sites, construction, water and power facilities in advance. (iv) It aids in integrating capital expenditures into the cash planning of the company with a view to finding out whether the necessary funds would be provided by internal or external sources. (v) Long-range planning is necessary for the proper timing of capital expenditures keeping in mind the trend of the business cycle. Capital expenditures made during the depression can prove helpful to meet the enhanced sales requirements of the succeeding period of prosperity, whereas capital expenditures undertaken at the peak of prosperity may not be completed until the subsequent period of depression. (vi) Long-range planning assists in examining the impact of capital expenditures on depreciation, insurance expenses and other fixed expenses in advance in order to make the necessary allowance for them in projecting the operating results.

The period covered by a programme for capital expenditure is mostly more than one year because of the complexity of modern machinery and the long period required in the fruition of investments in new product lines, expansion and replacements. The programme is usually projected over a period of five years. It should be based upon a thorough survey of industry trends, processes and methods, new equipments, sales forecasts, production capacities, and profit forecasts. The programme is usually divided into two parts : the period covering the next fiscal year; and the period covering the succeeding four years. The programme may be prepared three months prior to the next fiscal year at which time the next fiscal year can be carefully reviewed and broken down into quarters and another year in the future can be projected. Revisions in any period or year can be made at this time to reflect changes in trends or methods.

Long-range planning, it may be noted, has to be related to the current activities and progress of a company. In fact, the company develops a series of short-term guidelines that eventually merge into long-term objectives. The interaction between short-term and long-term goals is essential in order to have an orderly growth and eventual profit maximisation. (Capital expenditures are inevitably reflected in the company's operations—either in sales or in costs, depending upon the nature of expenditure. Thus the capital budget, despite the fact that it is planned over a long period, should be integrated with the operating budget.)

The essential *components of a long-range financial plan* consist of the following statements: (1) projected income statement; (2) projected balance sheet; (3) statement showing sources and uses of funds; and (4) capital expenditure budget. Titles and forms may vary from company to company but the above four basic estimates are used by the firms having comprehensive financial planning system.

The form of projected profit and loss statement corresponds to that which the company uses in its regular financial statement. In the projected income statement, figures involved are estimates as against actuals. It depends on sales projection, which in turn depends on an economic projection. Profit planning for a shorter period is usually based on profit and loss statements by months and long-term profit forecasts are normally prepared for 6 or 12 month intervals after the first year. Companies producing a large number of products prepare estimated profit and loss statements by products or product groups.

Though the projected balance sheet has the same form and content as the regular balance sheet to facilitate preparation and interpretation, it is frequently condensed to show only more significant items. Balance sheet projection may be prepared on a monthly basis for the first year but for the second year it may be sufficient to project at 3-month or 6-month intervals, and thereafter at the end of each of the years of the forecasting. Basic assumptions, however, have to be made with respect to the need for and nature of any new financing and its effect on the capital structure.

The statement of sources and uses of funds is prepared to measure the total inflow of funds, month by month, in the first year and thereafter year by year over the forecasting period, and to match against this, all the disbursement of funds required. Sources of funds, among other items, include profits retained, depreciation, sale proceeds of an asset, new capital raised. Disbursements involve dividends, loans to other companies, new investments, additions to plant and machinery, debt retirement, etc. This is an essential document for the chief financial executive as it enables him to obtain an overall view of total financial requirements several years ahead.

Controls for capital expenditure. The capital expenditure should be related to company objectives. The relevant parts of the capital expenditure control have been summarised by Joel Dean¹ as follows :

1. A creative *search* for *investment* opportunities.
2. Long-range *plans* and projections for the company's future development.
3. A short-range *budget* of supply of funds and required capital.
4. A correct yard-stick of *economic growth*.
5. Realistic *estimation* of the economic worth of individual projects.
6. *Standards* for screening investment proposals that are geared to the company's economic circumstances.
7. *Expenditure controls* of outlays for facilities by comparison of authorisations and specifications.
8. *Post-completion audit* of project earnings.
9. Investment analysis of *facilities* that are made available.
10. *Forms and procedures* to insure smooth working of the system.

Capital budgeting process

Capital budgeting process involves planning the availability and controlling the allocation and expenditure of long-term investment funds. Three essential questions have to be answered in the capital budgeting process : (i) How much money is going to be needed for capital expenditures in the coming planning period ? (ii) How much money is going to be available in total for such proposed investment ? (iii) How are available funds going to be assigned to the projects under consideration ?

Control of capital expenditures is difficult without capital budgeting. Capital budgeting helps the management in forecasting requirements for funds and thereby enables it to plan in advance to secure additional funds. If capital requirements are not calculated and each project is taken up individually as the need presents itself, it may result in selecting the projects not in the order of their desirability. Moreover, when integrated planning for expenditures is lacking, coordination among the different units of a company becomes difficult and the different divisions of the company may even act at cross purposes. Capital budgeting enables top management in a decentralised company to gain familiarity and maintain closer *liaison* with the plans and operating targets of divisions and departments. It helps to eliminate duplication of projects among divisions. A capital

¹ Joel Dean, "Controls for Capital Expenditures", *Financial Management Series*, No. 105, American Management Association, 1953.

budget is an effective way of adjusting demand for funds and selecting and assigning priorities to projects within the framework of corporate objectives and targets. This is accomplished by setting evaluation tests for projects and establishing minimum considerations for acceptance.

Some may believe that the uncertainty of the future makes it unwise, if not impossible, to plan in advance. Others may be afraid of over-centralisation and taking over by staff planners of the responsibilities that should rest with the operating executives. One cannot afford to ignore these criticisms of capital budgeting.

There are two types of capital budgets: long-range and short-range. The long-range budget is a planning tool while the short-range budget is an allocation and rationing device. The long-range budget normally extends from 3-5 years and covers areas of future expenditures rather than specific proposals for replacement or extension of facilities. In some companies it may even run for a period exceeding five years. The long-range budget attempts to make a forecast of the outlook for the industry, the company's projected position therein and its probable share of the market. The plant and division heads of the company are informed of this forecast and are asked to keep it in mind while preparing the estimate for their prospective capital requirement. This long-range capital budget is continually revised as economic conditions change or the company position shifts. And as expenditure needs become more precise, they are incorporated into the short-range capital budgeting. The long-range budget is flexible and oriented toward future corporate growth.

The short-range budget is more precise and is a financial or rationing budget for the coming one or at the most two years. It involves the preparation of an estimate of the total amounts of funds that are likely to be available for capital expenditures during the period covered by this budget. The various plant and division heads submit project proposals which they wish to get included in the forthcoming budget. Programme estimates of costs, benefits and savings are made. The financial executive and his staff consider these proposals and relate them to the funds expected to become available with a view to making a tentative apportionment to plants, divisions and departments.

The capital expenditures may relate to: (1) Cost reduction by— (a) replacing machinery and equipment, (b) plant rearrangement programmes or mechanisation of process, and (c) providing facilities to manufacture components currently purchased; (2) replacement of worn-out equipment; (3) additions and extensions to plant and machinery for having additional volume of existing product; and (4) installation of new plant and machinery for taking up a new product or produce-lines.

The corporate management is interested in making those capital expenditures which can help the firm in retaining or extending its share of the market. Aggressive management will spend a greater amount of funds to increase the share of the market either by producing additional volume or by developing new products or by creating new markets or finding new uses for existing products and thereby adding to the market. A company which fails to pursue any of these courses may not be effectively managed. Hence, in a properly managed firm, there is constant pressure for capital expenditures.

Planning capital expenditures. Efficiently managed companies have to attempt long-range forecasts of capital requirements. There are two approaches to these forecasts. Some of these forecasts may start at the grass roots, i.e., foreman, division manager or the research department are encouraged for making suggestions for a better product or a more efficient way of doing something or an entirely new product. Those ideas and suggestions are discussed, analysed and, if found to be of certain merit, formulated into proposals for capital projects. The other approach relates to the initiative taken by the top management to take a longer view than the operating executives. It involves periodic assessment of facilities, surveys of comparative position in the industries, research on the development of new products and new markets and similar investigations. As a result of all these efforts an overall plan for major capital expenditures may be formulated.

A combination of both these approaches to planning of capital expenditures cannot be ruled out and one cannot say categorically that which of the two approaches is more productive.

It would thus be seen that the capital budget is made up of outlays on plant and equipment to be incurred by the several divisions or departments of a firm. General managers of each operating unit or department submit requests for authority to make such outlays as they consider necessary or desirable. The requests for capital outlays are forwarded to the controller, budget director or an assistant to the top executive, according to the organisational set-up of the company. The budget director or other official entrusted with the responsibility for assembling the departmental or divisional capital budgets consolidates the requests and reviews them prior to presentation to higher authority which may be the appropriations committee or managing director who in turn presents the capital budget to the board of directors for final approval. The capital budget is usually approved by the board of directors only as to the total rupee amount involved. Individual projects are approved by an authorised official or committee after a study of the particular project.

Selection of projects. Experience shows that many projects are recommended for inclusion in the capital budget which, despite apparent desirability, may not be necessary for the firm or may not produce additional earning commensurate with the capital involved. To keep capital outlay within reasonable limits, capital budget control procedures should be designed to ensure that more desirable projects get the priority over others. Timing of capital expenditures is also important for considering its impact upon the company's financial position. Replacement of essential capital assets as a result of normal wear and tear or obsolescence may become unavoidable. Many expenditures may find justification in the increased earnings. The proposals submitted by the operating divisions or departments for inclusion in the capital budget can be classified under the following categories: (a) urgent or essential to satisfactory operations; (b) replacement resulting from wear and tear or obsolescence; (c) desirable on an earnings basis; and (d) desirable from the stand-point of logical expansion and development.

Review. The procedures for review or an approval of capital proposals vary from company to company. However, they have certain features in common. Minor projects may be approved at lower management levels. Major projects, on the other hand, must pass the scrutiny of top management. Thus a dividing line is drawn according to the amount of funds involved in a project. As the amount involved increases, so does the level of authority required for approval.

Some companies require merely a statement of justification giving the essential facts about the projects. Others, particularly the better managed ones, have evolved standard forms which should be filled out for each proposed expenditure above a certain minimum level. These forms, designed to describe the proposal and its purpose, show the estimated cost of the proposed project, reflect the project's influence on operating costs and profits, provide information on any equipment to be replaced and serve as a medium for obtaining necessary approvals and sanctions.

Some companies set up an appropriations committee to review departmental or divisional assignments as to urgency, desirability, profitability, cheaper alternatives and then to consolidate and submit the estimates to the executive committee with its recommendations. The appropriations committee is usually assigned limits of authority within which it can approve smaller appropriation requests included in the approved budget. Projects above the assigned limit are referred by the committee to a higher authority.

The executive committee may review the consolidated estimate from an overall view-point satisfying itself as to necessity, profitability, justi-

fication and urgency of different projects and may also consider the desirability of postponing some projects. This signifies only agreement in principle with the management's proposed capital investment programme and does not grant authority to commit funds. Final approval is given by the board of directors. Approval of capital budget is taken to mean that for projects included within it, sponsors can proceed to the more detailed engineering studies, and economic and technical analysis necessary to support individual appropriation requests.

Before authorising actual capital expenditures for a project, it is customary to examine an appropriation request to be submitted for management's approval. Such appropriation requests vary in form and title from company to company but usually contain the following basic information :

- Date of request,
- Project identification number,
- Description of the project,
- Purpose of and risks for the project,
- Estimated total cost,
- Estimated starting and completion dates,
- Estimates of the amounts and the timing of expenditures,
- Estimated cost savings or other economic or financial justifications,
- and
- Estimates of the amount and timing of income from the project approvals.

It is necessary to emphasise the importance of three major parts of the appropriation requests : (1) the estimate of the amount of investment required; (2) the timing estimates; and (3) the estimate of the income from the project. No matter how carefully designed the complicated evaluation tests are, their apparently decimal point precision will be deceptive if any one of the above three estimates' dimensions is basically faulty. For example, if the amount of the investment is under-estimated, not only will the rate of return from the project be lower than the calculated rate but also the need to provide additional funds may cause the subsequent cancellation or postponement of projects with more favourable rates of return. Even if the investment estimate is correct, the timing of the completion of the project may be wrong and because of the time value of money the estimated rate of return will be lower than expected.

One of the most vital aspects of the capital budgeting process is the accuracy of the three major estimates involved in the appropriation request for a capital project. In fact, this aspect has received less attention in the literature than the evaluation tests. Perhaps due to the difficulty and diversity of estimating the procedures and techniques the matter of accu-

racy in both the rupee dimension and the time dimension of the estimates in capital budgeting can hardly be over-emphasised.

Components of investment analysis

The capital budgeting process requires an estimate of future events to be expressed in a schedule of cash flows. At any given time, a company may be having a number of alternative ways termed as projects, to invest its funds and the purpose of a capital budgeting procedure is to obtain an indication of the value each might contribute to the company. Before applying any method to evaluate the relative desirability of a project, it is necessary to analyse the components affecting the projection of cash flows, both in and out, related to the projects, together with the time dimension of each flow. The basic components of investment analysis are: (i) amount of net capital investment; (ii) operating cash inflows; (iii) choice of horizon.

(i) **Net capital investment.** It covers the amount of funds committed to a project. It may include not only the cost of purchasing land, building and plant, but also an increase in the level of working capital required to support larger operations. If a project results in the replacement of an existing capital asset which has not been fully depreciated, there is usually an inclination to include the remaining value of the old asset in the amount of the investment, particularly if the replaced asset is still new. But the book value of the replaced asset should be of no consequence to the investment analysis since it represents *sunk cost*. The only relevant amount of project analysis is the salvage value received for the old asset. Such a cash inflow from the old asset is a reduction of the investment required for the new project. The book value of the replaced asset is the result of the method of depreciation adopted at the time of acquiring the asset and is not necessarily related to its economic value.

The relevant investment costs are the differential or incremental costs. These are the outlays that will be made if the project is undertaken and that will not be made if it is not undertaken. The cost of the machine, the cost of its installation and the cost of training operatives are relevant. These outlays are part of the investment even though some of them may not be capitalized in the accounting records. In other words, the outlays that are incurred by the firm, whether or not the investment is accepted, should not be charged to a particular project. The practice of allocating a share of general overhead to a new project on the basis of some arbitrary measure should be discouraged unless it is expected that the general overhead will actually increase if the project is accepted.

Some projects may require the use of a resource whose explicit cash outlay may be non-existent. For example, the project may require the

use of valuable floor space in a plant. The opportunity cost of using such resources should be charged to the investment project. The inclusion of opportunity cost should not be taken as an exception to the rule that only the actual cash flows should be considered. In fact, it is an extension of that basic approach. The opportunity cost charged to the project would measure net cash flows that would have been earned if the project under study had not been taken up. But it is extremely difficult to estimate opportunity cost in some instances and the temptation to charge costs must be viewed with skepticism.

In case of replacement of investments, the sale of the old machine may involve a write-off of undepreciated book values or a sale at a price above book value. In some of these cases, tax considerations are involved. The write-off may give rise to a capital loss and the sale above book value will mean a capital gain. Expert tax advice is needed on problems involving gains and losses on the sale of depreciable assets since the line between the assets giving rise to capital gains or losses is difficult to define. In any event, when the existing assets are disposed of the relevant amount by which the net investment is reduced is the proceeds of the sale adjusted for taxes.

Investment in the new project may also involve a commitment of funds to additional inventory and other current assets. Part of this increase in working capital may be supplied from increased accounts payable and accrued expenditure. The net increase in working capital is as much an investment as the equipment itself, although in a more liquid form. At the end of the project, it is reasonable to assume that the residual value of investment in working capital items is approximately the same as the amount of the investment. Thus the amount of working capital is treated as a cash inflow in the last year of the project and its present value is found by discounting at the required earnings rate.

Terminal or residual values. The residual or terminal or salvage value of plant and equipment at the end of the useful life of the project is taken into account while considering the amount of net outlay. In some cases, the estimated residual value is so small and occurs so far in the future that it has no significant effect on the decision. Moreover, any salvage value that is realised may be almost or completely offset by removal and dismantling costs. On the other hand, there may be situations where terminal value is significant and becomes a cash inflow in the year of disposal. It should, therefore, be included with other cash inflows. Speaking on projects in general, it can be said that non-depreciable assets, such as inventory, accounts receivable and other elements of working capital should preserve their value during the project so that they can return funds equal to those invested in them. Depreciable assets, particularly special purpose equipment, are liquidated for much less than their cost. There may be

cases where appreciation in price can be anticipated as in strategically located real estate or investment in growth shares. Such projects return not only the initial investment but contribute to the income of the firm.

Deferred investment. While many projects involve a single commitment of funds at one moment of time, there are some projects where the commitments are spread over a considerable period of time. For instance, the construction of a new plant may require disbursement over several years. In order to make the return on investment calculations, these investments should be brought to a common point in time. This is done by the application of discount rate to the amounts involved. In general, the appropriate rate depends on the uncertainty that the investment will be made—the lower the uncertainty, the lower the rate. If the commitment is a definite one, a discount rate may be equivalent to the interest rate on amounts which represent a definite commitment. If the future investment will be made only if earnings materialise, then the rate can be the required earnings rate.

(ii) Operating cash flows. Operating cash flows are not identical with profits or income. It is essential to recognise difficulties that arise in applying a cash flow analysis to investment proposals. A change in income can occur without any corresponding change in cash flow. The cash flow procedure avoids difficult problems underlying the measurement of corporate income which usually accompany the accrual method of accounting. For purposes of investment analysis the time of cash receipt or disbursement is of crucial importance.

In considering the cash flows of the investment in a project it is essential to take into account the major types of investment projects. Most capital expenditures have mixed objectives and may not fit into any single category. However, the following classification is useful in dealing with the problem of uncertainty of cash flows:

- (a) **Replacement investments:** For such investment projects, the relevant operating cash flows consist of the differential costs saved by taking up of the new project in place of the old one. Estimates of the net flow of funds for such investment and of the savings are reasonably accurate.
- (b) **Expansion investment:** Expansion investments involve increased earnings rather than reduced costs. If the demand for the new capacity is real, estimates in this area are also reliable.
- (c) **New product-line investment:** In this area, the uncertainties of estimation are much greater and judgment has great weight.

- (d) Strategic investment: The benefits of such investments are so spread that their effect on income is difficult to measure. Examples of such projects are outlays on parking place, reception rooms, recreation facilities, air conditioning, new elevators, etc., whose benefits are established purely on the basis of value judgments of the management.
- (e) Contractual investments: Most of the flows of funds under such investments are determined by contracts. For example, the exact terms and times of payment under loan agreements, construction contracts, leases, etc., play a major role in the choice of a project. The operating cash flows in case of such investments are easily determinable and precise.

The estimates of future cash inflows do involve certain difficulties which cannot be under-rated. It is often useful to establish a range of estimates for operating costs or revenues, such as most likely figure, the highest, and the lowest possibilities in order to see whether an investment proposal has merit even if unfavourable conditions develop. Not all investment proposals are equally difficult to be estimated because the nature of uncertainty relating to a given investment varies, as already discussed. It is, therefore, essential that the analyst as well as the management interpreting the analysis are aware of these uncertainties.

Absolute and relative cash flows. A distinction should be made between absolute and relative cash flows. When cash flows are compared with zero cash flows, they are known as absolute cash flows. The cash flows of one project can be compared directly with that of another project or difference in cash flows of two projects can be determined. If this difference itself is positive in a particular period, it can indicate how much better the cash flows from one project are than those from another. Such cash flows are known as relative flows. An important conceptual danger must be avoided in estimating relative cash flows, i.e., almost any investment can be made to seem worthwhile if it is compared with a sufficiently bad alternative.

The following principles should be kept in mind while estimating cash flows: (i) the estimate of cash flows should cover all costs and benefits resulting from the adoption of the proposed projects; (ii) the estimate should be on an incremental basis, taking the difference between the resulting streams of costs and benefits with and without the project respectively; (iii) indirect benefits or costs can be taken into account to the extent appropriate to the decision-making unit; and (iv) it is necessary to compare the total performances with total costs and the practice of adjusting certain benefits against certain costs or *vice versa* should be discouraged as it often leads to wrong ranking projects.

Excluding interest payment. Cash disbursed by way of interest payment should be excluded from the cash flow computation used in analysing investment ~~because the interest factor is taken into account by the use of present value technique.~~ If cash disbursement for interest is included, it would result in double accounting. We usually seek the overall rate of return on the investment and ignore whether the funds required for the investment are borrowed (which involves interest) or whether they come from the shareholders (which does not involve interest). In problems where the method of financing is an important part of the proposal, the tax shield provided by the interest may properly be considered. In these problems, the rate of return that results from the calculation is a return on the part of the investment which was financed by the shareholders' equity and not a return on the total committed funds.

Cash flows : taxes and depreciation. The cash flows should be taken after the deduction of income taxes. The after-tax cash proceeds can be calculated as under :

$$\text{After-tax proceeds} = (1 - \text{tax rate}) \times (\text{revenues} - \text{expenses other than depreciation} - \text{depreciation}) + \text{Depreciation}.$$

or

$$\text{After-tax proceeds} = (1 - \text{tax rate}) \times (\text{revenues} - \text{expenses other than depreciation}) + (\text{tax rate}) \times (\text{depreciation}).$$

It is necessary to take taxes into account in arriving at a decision concerning a capital asset acquisition. Taxes affect both the time of the cash flows as well as their amounts.

Depreciation is usually not a relevant factor in evaluating alternative projects but it affects the amount of taxes to be paid and thus the cash flows. It is essential to note that where existing assets are disposed of, there may be a question of taxable gain or loss on the remaining book value though book value is irrelevant to the question of asset replacement. But to the extent taxes are involved, the cash flows are altered.

Cash flows and uncertainty. Each computation of cash flows is based on certain assumptions on the level of business activity, nature of production, future availability of improved equipment, cost of factors of production, future demand and the like. As there is a large amount of uncertainty connected with each of these factors, it is necessary to make a note that computations are indications rather than one hundred per cent certain and accurate.

The growing use of computers now enables the financial analyst to take various levels of possible cash flows, return on investment and other results of proposed outlay and obtain an estimate of the odds of each potential outcome. Under the probability approach, estimates of a variety

of factors such as market size, selling prices, market growth rate, share of the market, investment cost, can be varied. The computer programme developed to carry out simulation allows for easy insertion of variables and numerous random factors can be tried to obtain a probability distribution for rate of return. A computer can be used to carry out the trials for the simulation methods in very little time and at very little expense. For one trial actually made in a case, 3600 discounted cash flow calculations, each based on selection of nine different factors, were run in two minutes at a cost of \$15 for computer time ("Risk Analysis in Capital Investment", *Harvard Business Review*, January-February, 1964, p. 101). This new approach gives a promising way to deal with the problem of uncertainty concerning estimates of future cash flows and the variety of several key factors which go to determine such flows.

(iii) **Choice of horizon.** The choice of horizon refers merely to the selection of the time period which the decision maker has to consider in evaluating benefits and costs. There cannot be a rule for establishing a horizon but as a practical matter, benefits and costs do not count for much if they occur far in the future. For instance, at 10% a rupee to be received 25 years from now is worth only 9 paise today and less than 1 paise today if received after 50 years. The most practical way of resolving the horizon problems is to let the discount rate take care of it. In fact, many companies impose a shorter limit of benefits and costs considered for many types of projects. The argument for this practice is that the future is uncertain and that forecasts beyond a certain period of time are unreliable so that benefits beyond that point are largely conjectural.

The cash flow analysis is carried out for the time period corresponding to the life of the proposed project, the period over which the benefits can be estimated. The end of this period is called the horizon for the project, the word suggesting that beyond this point earnings are not feasible. This time period corresponds to the economic life of the project. There are two ways of defining the life of equipment: physical life and economic life. When thinking about the life of a plant or equipment, there is a tendency to consider primarily its physical life (the number of years the equipment will probably be of use to the company in performing the technical job for which it was purchased). This concept of life is also used in calculating depreciation for accounting and income tax purposes. But it is of little use in investment decisions.

The only period which is relevant in investment analysis is the economic life. Investments are made for the economic benefits to be derived and the longer the benefits can be received, the better it is for the investor. For the purpose of investment analysis, the period during which the project is expected to yield the economic benefits is relevant.

THE EVALUATION PROCESS

One of the important steps in the capital budgeting procedures is to determine through analysis which of the various investment opportunities is most profitable.) We would confine our discussion to the most widely accepted criteria. It is assumed that the goal sought is the maximisation of profit which is taken to mean maximisation of the present value of profits. Present value is used to provide a common yardstick, enabling us to resolve conflicts between the present and future profits.

(In selecting a suitable criterion, ^{for analysis} the following two fundamental principles must be kept in view: (1) the bigger the better principle which means that, other things being equal, bigger benefits are preferable to small ones; (2) the bird in hand principle which means that, other things being equal, early benefits are preferable to later benefits as other things are seldom equal. In any event, these principles themselves can hardly be used as criteria. Means have to be found for taking both of them in a single yardstick.

We would discuss in detail the following four methods to measure return on investment: (1) Pay-back; (2) Accounting rate of return; (3) Time adjusted rate of return calculated by the present value method; and (4) Discounted cash flow method also known as yield method or I.R.R.

Payback approach

Payback period represents the length of time required for the stream of cash proceeds produced by the investment to be equal to the original cash outlay, i.e., the time required for the project to pay for itself. The formula is simple:

$$\text{Payback Period} = \frac{\text{Original investment}}{\text{Annual cash flow}}$$

The annual cash inflow represents the earnings, i.e., the estimated cash savings resulting from the proposed investment. For instance, a project requires an investment of Rs 12,000 and has an estimated life of 8 years promising cash savings of Rs 4,000 a year (before depreciation). The project will pay for itself in 3 years $\left(\frac{\text{Rs } 12,000}{\text{Rs } 4,000} \right)$. If the cash savings are unevenly distributed in time, then the payback will be determined as as shown on the next page.

It is clear that investment recovery will be in about 3½ years. But the payback test is not a measure of profitability. It is a little more than a rule of thumb.

Investment=Rs 12,000

Year			Estimated Annual Inflow	Cash inflows— Cumulative
1	...	...	2,500	2,500
2	...	...	3,500	6,000
3	...	...	4,000	10,000
4	...	...	4,000	14,000
5	...	...	3,000	17,000
6	...	...	2,000	19,000
7	...	...	1,500	20,500
8	...	...	500	21,000

The payback method occupies an important place in any discussion of investment criteria, not because of its merits but because of its wide usage. It is popular with the business executives as well as with Soviet planners under the name recoupment period. Payback is simply a measure of the term required from a project to return the initial investment.

The ranking part of the payback method gives priority to projects having quicker paybacks. Is payback a suitable criterion for evaluating projects? It is difficult to give a categorical answer. This method has the following advantages. ① It is easy to calculate. ② Companies can judge the length of time their funds will remain tied up in case of approving a certain project. ③ During the period of tight money, a quick payback project is preferable to one which yields a higher rate of return but ties up funds for a much longer period of time. ④ The payback approach favours short-term projects and thus screens out riskier projects which may extend farther into the future with higher risks.

Disadvantages
On deeper examination, it may be noted that this method ignores the bigger and better principle completely. ① It does not take into account the cash inflows after the recovery of investment. ② It gives some attention to timing but does not adequately satisfy the bird in the hand principle as it gives a higher weight to all receipts before the recovery of investment and a zero weight to all subsequent receipts. ③ Thus payback ignores to measure all the dimensions of profitability. In fact, it does not measure rate of return; it over-emphasises liquidity.

Payback criterion, however, is a good approximation to the reciprocal of the internal rate of return criterion if projects have long lives, substantially in excess of the payback period and where income streams are equal from year to year. But payback approach cannot be an adequate criterion where projects are short-lived as well as long, have high irregular cash flows as well as regular. For determining the cut-off point of payback

period, the reciprocal of the cost of capital rate can be used as a maximum acceptable payback period. For example, if the cost of capital is 20%, payback must be less than five years and in case of 15%, payback period should not exceed seven years.

Accounting rate of return

Under this method, capital employed and related income are determined by following principles and practices commonly used in accounting for assets and income. Rate of return may be calculated by taking (a) income before taxes and depreciation, (b) income after taxes but including cash flow from depreciation, or (c) income after taxes and after depreciation. Further, the rate of return will vary depending whether original investment or average investment is used. Thus this method provides several rates of return.

There are, however, two main variations: (i) original investment measure; and (ii) average investment measure. In case of the original investment method, the average annual earnings over the life of the investment are compared with the amount of the original investment. This method does not recognise that the investment gradually decreases while earnings may vary from year to year. In case of the average investment method, the average annual income is divided by half of original investment or by a figure representing the mid-point between the original outlay and the salvage value of the investment. The accounting method is simply a ratio of earnings to investment. The confusion which is created by varying rates of return under this method can be appreciated by the following illustration:

Illustration: A project of 20-year useful life requires an original investment of Rs 1,00,000. The necessary information relating to expected earnings, depreciation and taxes is given below:

Original Investment	...	Rs 1,00,000
Average Investment (1,00,000/2)	...	50,000
Annual average earnings before depreciation and taxes		20,000
Annual average charge for depreciation		5,000
Annual average income before taxes	...	15,000
Annual average payment of taxes (50%)	...	7,500
Annual average earnings after depreciation and taxes	...	7,500

From this information the following accounting rates of return, which are indeed very confusing, can be calculated.

				In case of average investment
1.	$\frac{\text{Annual average gross earnings}}{\text{Original investment}}$	$= \frac{20,000}{1,00,000}$	$= 20\%$	40%
2.	$\frac{\text{Annual average earnings before taxes}}{\text{Original investment}}$	$= \frac{15,000}{1,00,000}$	$= 15\%$	30%
3.	$\frac{\text{Annual average earnings after taxesplus depreciation}}{\text{Original investment}}$	$= \frac{12,500}{1,00,000}$	$= 12.5\%$	25%
4.	$\frac{\text{Annual average earnings after taxesand depreciation}}{\text{Original investment}}$	$= \frac{7,500}{1,00,000}$	$= 7.5\%$	15%

The accounting method using original investment does not make an attempt for gradual recovery of capital over time and thus tends to understate the rate of return. However, average investment assumes regular recovery of capital over the life of the project. But to the extent that actual recovery does not fall in line with the average investment assumption, the rate of return would be either overstated or understated. Secondly, the diverse concepts of earnings, i.e., before or after taxes, and before or after depreciation, provide varying rates of return under the accounting method. Thirdly, the determination of what part of the project would be treated as a capital expenditure or revenue expenditure affects the rate of return. If more of the cost of the project is taken as revenue expenditure, the rate of return will change considerably merely due to the variation of the accounting technique. Fourthly, the accounting method does not allow for the time element in the return of funds. It gives the same weight to future rupees as it does to current rupees. The time value of money is ignored which makes the rate of return unrealistic.

Time-adjusted rate of return

In recent years, the time discounted rate of return has come to be recognised as the most meaningful tool for financial decision-making with respect to future commitments and the projects.¹ Various surveys have been made to ascertain the extent to which companies employ the different methods of calculating rate of return for decision-making purposes. It is difficult to assess the results of such surveys because within the same company different methods may be used for different purposes. Moreover, despite the growing awareness of the implications of the time-adjusted rate method, the pay-back still is a very popular method. Many companies have the impression that the discounted cash flow method is complicated

and hard to apply. In reality this is not the case. It may be difficult to grasp at first but it is quite easy to apply and yields the most realistic rate of return estimate. The time-adjusted rate of return calculated either as the net present value or the discounted cash flow yield is being increasingly used not only to screen and rank proposed capital expenditures but also employed in make-or-buy decisions, in lease-or-own judgments and in mergers and acquisitions. It has come to be one of the most promising tools in financial decision-making. The time-adjusted methods can be examined under two heads: (a) present value method; and (b) internal rate of return method.

Present value method. The present value method, also known as discounted benefit cost ratio method, takes account of all income whenever received and to this extent complies with the bigger the better principle. Moreover, introduction of compound interest into the calculation gives more weight to the early receipts than the late ones. Thus this method gives effect to both the principles. Under the present value method, a minimum required rate of return is assumed and the calculation is made to use a present value amount which is compared with the original investment to determine prospective profitability. This method is based on the following basic rule: An investment proposal should be accepted, other things remaining the same, if the present value of its cash inflows, discounted at a specified rate of return, equals or exceeds the amount of the investment required. This discounting rate or factor is also referred to as the required earning rate.

If a businessman invests Re 1 today, he expects to get back somewhat more than Re 1 later on. He wants to earn a return on his investment. Similarly, if an investment proposal will produce earnings of Re 1 at the end of one year, the businessman will be willing to invest somewhat less than Re 1 in it today. The expectation of receiving Re 1 at the end of the year, therefore, has a *present value* of somewhat less than Re 1. How much less depends on how much the businessman expects to earn on the money he invests. If he expects to earn 15%, for example, the expectation of receiving Re 1 a year from now has a present value of 87 paise. In other words, if he invests 87 paise today for one year at a rate of 15 per cent, he would earn 13 paise on investment and have Re 1 at the end of the year. Thus the present value for a payment of Re 1 to be received after n years at any rate of return can be found with the formula:

$$PV = \frac{1}{(1+K)^n}$$

where PV is the present value and K the discount rate.

To illustrate the construction of a present value table (which takes account of compound interest) we may make a few calculations using a

discount rate of 10 per cent. Suppose we want to know the present value of Re 1 to be received one year from today, the formula is

$$PV = \frac{1}{(1 + .10)} = .90909.$$

Similarly, the present value of Re 1, to be received two years from today, will be

$$PV = \frac{1}{(1 + .10)^2} = \frac{1}{1.21} = .82645.$$

Fortunately, a present value table (Table A given at the end of this Chapter) has been prepared that relieves us of making these calculations every time we have a problem to solve. We can see in the Table that for a 10% discount rate, the discount factors for one and two years in the future are 0.909 and 0.826 respectively.

If we had an uneven series of cash flows—Re 1 one year after, Rs 4 two years hence, and Rs 3 three years from now—the present value of this series, using a 10 per cent discount rate, would be :

PV of Re 1 to be received at the end of one year	Re 1 (0.909)	0.909
PV of Rs 4 to be received at the end of two years	Rs 4 (.826)	3.304
PV of Rs 3 to be received at the end of three years	Rs 3 (.751)	2.253
Present Value of series		<u>Rs 6.466</u>

However, the procedure is simplified for a series if the cash flows in each period are the same. A series of this sort is known as an annuity. Suppose that in a series of future cash flows, Re 1 is to be received at the end of each of the next three years. The calculation of the present value of this stream will be :

PV of Re 1 to be received in one year	0.909
“ “ “ “ two years	0.826
“ “ “ “ three years	0.751
	<u>2.486</u>

By using table of present value of Re 1 received annually for n years (Table B) it is unnecessary to go through these calculations in even series of future cash flows. It can be found from Table B that the discount factor is 2.487 and we would simply multiply Re 1 by 2.487 to obtain Rs 2.487. Thus, for an even series of cash flows, we can multiply the appropriate discount factor times the cash flow. If we wish to know the present value, using a 12 per cent discount rate, of a stream of Rs 5 cash flows to be

received at the end of each year over a four-year period, the calculation will be :

$$\text{Rs } 5(3.037) = \text{Rs } 15.185.$$

Problem 1 : Should a proposal involving an investment of Rs 4,000 with expected cash inflows of Rs 1,000 a year for five years be accepted if the required earnings rate is (a) 15 per cent or (b) 6 per cent ?

The present value of the cash inflows can be found as follows :

Year		Cash Inflows	Present value of Re 1 at 15 %	Total present value at 15 %	Present value of Re 1 at 6 %	Total present value at 6 %
		Rs		Rs		Rs
1	..	1,000	.870	870	.943	943
2	..	1,000	.756	756	.890	890
3	..	1,000	.658	658	.840	840
4	..	1,000	.572	572	.792	792
5	..	1,000	.497	497	.747	747
				3,353		4,212

As present value of Rs 3,353 at 15% is less than Rs 4,000, the proposal will not be acceptable, ignoring non-quantitative considerations. But at 6% the present value of cash flow earnings exceeds Rs 4,000 by Rs 212. This rate makes the project acceptable.

Table B shows the present value of Re 1 to be received annually for each of the next n years at a given rate of interest. Each figure in Table B is obtained simply by cumulating the figures for the corresponding year and all preceding years in the same column in Table A. Table B can be used directly to find the present value of a stream of equal payments received annually for any given number of years and thus reduces considerably the arithmetic required on problems of the type worked in Problem 1 above.

The question posed in Problem 1 can be solved by finding the present value of Re 1 a year for five years at 15 per cent as shown in Table B. It is Rs 3.352; therefore, the present value of Rs 1,000 a year for five years is $1000 \times 3.352 = \text{Rs } 3,352$ (slightly different from Rs 3,353 due to approximation).

Table B can also be used to find the present value of a stream of earnings between any two points in time. It is possible by subtracting the

value for the year preceding the first year of the flow from the value for the last year of the flow.

Problem 2 : What is the present value of Rs 500 a year to be received for five years starting in year 6, if the discount rate is 12 per cent ?

Present value of Re 1 a year for 10 years at 12 per cent	Rs 5.650
Less Present value of Re 1 a year for 5 years at 12 per cent	3.605
Present value of Re 1 (years 6-10)	Rs 2.045

$$\text{Present value of Rs 500} = \text{Rs } 500 \times 2.045 = \text{Rs } 1022.5.$$

Tables A and B are based on the assumption that earnings are received once a year and on the last day of the year. This may not be a realistic assumption for many problems where earnings flow is throughout the year. These tables understate the present value of earnings if earnings are actually received throughout the year rather than entirely on the last day of the year. Tables are available showing the present values of earnings flows that occur quarterly, monthly or even continuously. However, annual tables (like Table A and B) are commonly used in business investment problems perhaps due to the fact that they are easier to understand than tables constructed on other assumptions, give conservative estimates by understating the present value, and are good enough considering the possible margin of error in the basic estimates.

Tables A and B are often used in combination, as illustrated in the solution to Problem 3, to analyse the rate of return on investment projects.

Problem 3 : Should a project involving an investment of Rs 1,000 with annual earnings of Rs 200 a year for the next four years with a residual realised value of Rs 600 at the end of four years be accepted if the required earnings rate is 10 per cent ?

The present value of earnings and residual value of the project at 10 per cent is Rs 1043.8 calculated as follows :

Year	Cash Inflows	10 % Discount Factor	Present value (2 × 3)
1	2	3	4
1-4	Rs 200/year	3.170 (Table B)	Rs 634.0
End of 4	600	.683 (Table A)	409.8
Total Present Value =			Rs 1,043.8

The project is acceptable as the present value of its earnings and residual value is higher than the present value of its investment.

Net present value (NPV). The net present value is the difference between present value of benefits and the present value of costs. For instance, net present value of project in Problem 3 will be Rs 43·8 (Rs 1043·8—Rs 1,000). If the net present value is positive the conclusion is favourable to go ahead with the project, but if it is negative the project is rejected. *The analysts who use this method feel that it gives desired indication with the least confusion.*

Profitability index. If the present value method is used, the present value of the earnings of one project cannot be compared directly with the present value of earnings of another unless the investments are of the same size. In order to compare the proposals, the size of the cash flows to investment must be related. This is done by dividing the present value of earnings by the amount of investment, to give a ratio that is called the 'profitability index' or 'desirability ratio'. For instance, the profitability index for project in Problem 1 at 6 per cent discounting rate would be $\frac{4212}{4000} = 1.05$ as compared to $0.838 = \frac{3353}{4000}$ at 15 per cent. The higher the index number the better the project. *The profitability index is an effective tool for ranking the projects.*

Internal rate of return (IRR)

In the present value method, the required earnings rate is selected in advance. There is an alternative method which finds the earnings rate at which the present value of the earnings equals the amount of the investment. This rate is called the 'time-adjusted return', 'discounted cash flow (DCF) rate of return', 'internal rate of return', 'yield rate', 'investor's method' or 'marginal efficiency of capital'. The internal rate of return is the rate which brings the sum of the future cash flows to the same level as the original investment. In other words, the internal rate of return is the rate of discount which equates the present value of the net benefits with the cost of the project. This is usually found by the process of trial-and-error or picking estimated rate and the present values are then calculated and summed up to find $V - C$ (V denotes the present value of benefits and C the present value of costs). If $V - C$ is positive, a higher rate should be tried and if it is negative, a lower rate. If $V - C = 0$, the choice proves to be correct and the rate has been found. Otherwise this procedure continues till the rate is found for which $V - C = 0$ or very insignificant positive or negative figure.

The internal rate of return for an investment is the discount rate that equates the present value of the expected cash outflows with the present value of the expected inflows. Mathematically, it is represented by that rate, r , such that

$$\sum_{t=0}^n \left(\frac{A_t}{(1+r)^t} \right) = 0$$

where A is the cash flow for period t , whether it be a net cash flow or outflow, and n is the last period in which a cash flow is expected. If the initial cash outlay or cost occurs at time 0 the above equation can be expressed as

$$A_0 = \frac{A_1}{(1+r)} + \frac{A_2}{(1+r)^2} + \dots + \frac{A_n}{(1+r)^n}$$

Thus r is the rate that discounts the stream of future cash flows, A_1 through A_n , to equalise the initial outlay at time 0, i.e., A_0 .

Illustration. Suppose we can invest Rs 1,000 in a project which is expected to give Rs 250 per year for five years and nothing thereafter. On our investment of Rs 1,000 we receive a total of Rs 1,250 which represents a return of our original net cash outlay plus compounded annual interest. What is this rate of interest?

The cash inflow in this case represents a sequence of uniform payments made at equal intervals of time, i.e., an annuity. Rather than working with the present value of each separate payment, we can determine the present value of the sum of all the separate future payments. For determining the rate of return the following equation can be set up:

$$\text{Net cash outlay} = \text{Net cash inflows} \times A_n \nearrow i$$

$$\text{Rs } 1,000 = \text{Rs } 250 \times A_5 \nearrow i$$

Solving the equation results in a factor of 4. Our objective is to find the annual rate of interest which when applied to an annuity of Re 1 for five periods provides a factor of 4. The answer must lie along the five year line of Table B. Referring to Table B, we find that at 8 per cent, on the five-year line, the factor nearest 4 is 3.993.

This can be presented as follows:

$$\text{Rs } 1,000 = \text{Rs } 250 \times A_5 \nearrow 0.08$$

$$= \text{Rs } 250 \times 3.993$$

$$= \text{Rs } 998.25$$

The technique of calculating the internal rate of return can be examined under two heads: (i) level earnings; and (ii) uneven earnings.

Level earnings. If the earnings are level, i.e., the same amount each year, the process is simple. It can be illustrated by the following solution to Problem 1.

- (a) Divide the investment, Rs 4,000, by the annual earnings, Rs 1,000. The result, 4.00 is called the 'factor' or 'payback'.
- (b) Go across the five year row of Table B. The column in which the figure closest to 4.0 appears shows the rate of return. As the closest figure is 3.993 in the 8 per cent column, the return is slightly less than 8 per cent.
- (c) If the management is satisfied with a return of slightly less than 8 per cent, then it can accept this project. If the management requires a higher return the project will be rejected.

The factor 4.0 is the ratio of the investment to the annual earnings. This number, 4.0, opposite any combination of years and discount rates means that the present value of a stream of earnings of Re 1 a year for that number of years discounted at that rate is Rs 4. Each figure in Table B shows the ratio of the present value of a stream of earnings to an investment of Re 1 made today, for various combinations of discount rates and number of years.

It may often be useful to locate several combinations of years and rates that have the specified factor. Some of the combinations found in Table B for a factor of 4.0 are as follows :

If the life is—				Then the internal rate of return is nearly—
5 years	..	..	..	8 %
6 years	..	..	..	12 %
7 years	..	..	..	16 %
8 years	..	..	..	18 %
9 years	..	..	..	20 %
10 years	..	..	..	21 %
15 years	..	..	..	24 %

It can also be expressed as:

If the required internal rate of return is—				Then the life of project must be at least—
6 %	..	..	..	5 years
8 %	..	..	..	5 + years
10 %	..	..	..	6 years
15 %	..	..	..	7 years
20 %	..	..	..	9 years
25 %	..	..	..	50 + years

There is a general criticism that the internal rate of return is too lengthy to calculate. But once the analyst has become familiar with the approach, the calculations can be made quite rapidly with clerical assistance. There are certain short-cuts also which help in the calculation of this rate of return like the annuity concept. This can be illustrated by taking a simple example of project involving an investment of Rs 1,000 that is likely to return Rs 250 a year for five years. The usual process of trial and error in finding out the internal rate of return can be avoided in this case because the cash flow represents a sequence of uniform payments made at equal intervals of time, that is, providing an annual of Rs 250 per year for five years. Instead of finding the present value of each separate payment, the present value of the annuity can be ascertained which means the present value of the sum of all the separate future payments. For this purpose, the basic formula is symbolised by the expression

$$A_n \cdot i = \frac{1 - (1 + i)^{-n}}{i} \text{ where } n \text{ stands for periods and } i \text{ for rate of interest per period.}$$

Knowing the formula for an annuity, we can determine the rate of return by setting up the following equation: $\text{Rs } 1000 = \text{Rs } 250 \times A_n \cdot i$. In order to solve this equation Rs 1,000 is divided by Rs 250 to obtain a factor of 4 which is the payback. What we have to find is the annual rate of interest which when applied to an annuity of one for five years provides a factor of 4, the payback. Referring to Table B which shows the present value of Re 1 per period at compound interest, we find that at 8 per cent in five years, the factor is 3.993. Thus the rate of return on an investment of Rs 1,000 that provides Rs 250 annually is found to be 8 per cent.

A simple technique has been worked in the study of Return on Capital made by the National Association of Accountants which gives a table (see Table C) developed to utilise the payback period to approximate the rate of return. In Table C, the intersection of the vertical column for the payback period and the horizontal row for the number of years the project will last, gives the approximate rate of return. For example, if a project requires an investment of Rs 10,000 and has a life of eight years, and is expected to yield Rs 2,500 a year, the payback is 4 years. Using this Table, moving across the 8 year row to the 4 year payback column we find a rate of return of 20%. For projects with long lives or with lives substantially in excess of the payback period, and with relatively stable and equal cash flows, the reciprocal of the payback period serves as an approximate measure of the rate of return on capital that is obtained by the internal method.

Uneven earnings. If cash flows are not the same in each year, the internal rate of return is found by trial-and-error. The cash flows of pro-

ject for each year and its residual value are listed and various discount rates are applied to these amounts until a rate is found that makes their total present value equal to the amount of the investment. This approach can be illustrated by the solution to Problem 4.

Problem 4. An investment of Rs 10,000 is envisaged for a project which promises cash flows of Rs 5,000 in first year, Rs 4,000 in second year, Rs 3,000 in the third year and Rs 2,000 in fourth year. What is the internal rate of return of this investment project?

Dividing the investment, Rs 10,000, by the average annual cash flows, Rs 3,500, we can have the payback or factor 2.86 to help us in selecting a discount rate for the initial trial. Going across the four year row of Table B, the column giving a figure close to 2.86, the discount rate appears near about 15%. But this approach of averaging the cash inflows cannot be used in all the cases of uneven cash inflows particularly if the magnitude of unevenness is quite high.

We can proceed by selecting 30% as the rate of discount. The difference of $V-C$ is a negative figure (-1722) which gives us an indication that the rate of discount is high. If further trials are made at 18% and 16%, we would find that the rate which can make $V-C=0$ lies somewhere between 16% and 18%.

We can approximate the actual rate by linear interpolation :

$$\frac{\text{Difference in calculated present value and required net cash outlay}}{\text{Difference in calculated present values}} \times \text{Difference in rates}$$

$$16 + \frac{10,309 - 10,000}{10,309 - 9,966} \times 2 = 16 + \frac{309}{343} \times 2 = 17.8.$$

Year	Cash Inflows	Discount factor 30%	Total Present Value (2 × 3)	Discount factor 18%	Total Present Value (2 × 5)	Discount factor 16%	Total Present Value (2 × 7)
1	2	3	4	5	6	7	8
1	5,000	0.769	3,845	0.847	4,235	0.862	4,310
2	4,000	0.592	2,368	0.718	2,872	0.743	2,972
3	3,000	0.455	1,365	0.609	1,827	0.641	1,923
4	2,000	0.350	700	0.516	1,032	0.552	1,104
			8,278		9,966		10,309
	V-C		-1,722		-34		+309

In internal rate of return calculating procedure, it is usually necessary to interpolate in order to estimate the location of a number that lies between two figures appearing in the Table. However, one need not be very precise about these interpolations because the result is no better than the basic data which are ordinarily rough estimates. Computations of fractions of a per cent are hardly necessary. *Relatively mathematical overtones of the internal rate of return should not obscure the important fact that the accuracy of this method can be no better than the underlying data.*

Reinvestment rate assumption of IRR. The internal rate of return calculations are essentially based upon the reinvestment rate assumptions, i.e., the IRR method assumes reinvestment at the IRR. This can be illustrated by considering a capital expenditure project involving an investment of Rs 1,952 in period t_0 . This project is likely to have inflows of Rs 1000 each in periods t_1 , t_2 and t_3 . The internal rate of return on this project is 25 per cent as shown below:

Period	Outflow	Inflows	Present value at 25% D.F.
	Rs	Rs	Rs
t_0	1952		
t_1		1000	800
t_2		1000	640
t_3		1000	512
			<hr/> 1952

If this project is financed by borrowing funds at 25 per cent rate of interest, that is, equal to the internal rate of return, the firm should be in a position to meet its obligations of interest and repayment of capital out of inflows related to this project over the period of three years. The respective outflows and inflows of investment proposal and financing proposal are as shown on the next page.

Why has this deficit of Rs 416 arisen? It is due to ignoring the reinvestment assumption of IRR. Unless the surplus at the end of period t_1 and t_2 is reinvested at the internal rate of return of 25 per cent, the firm cannot generate enough funds to meet this gap. For instance, if surplus of Rs 512 at the end of t_1 is reinvested at 25 per cent it would be generating Rs $128 \left(\frac{512 \times 25}{100} \right)$ and at the end of t_2 the firm would be having a surplus for reinvestment of Rs 640 (Rs 512 + 128) and Rs 512 or a total sum of Rs 1,152 (Rs 640 + 512) for reinvestment at 25 per cent. At the end of third

	t_0	t_1	t_2	t_3
<i>Investment Proposal</i>				
Outflow	(1952)			
Inflows		1000	1000	1000
(Return on investment)				
<i>Financing Proposal</i>				
Inflow	1952			
Outflow		(488)	(488)	(488)
Interest				(1952)
Principal				(2440)
Surplus		512	512	
Deficit				(1440)
Cumulative surplus or deficit		512	1024	(416)

year this would be generating Rs 288. Thus the total amount available with the firm at the end of t_3 will be Rs 416 (Rs 128+288) to meet the deficit. If reinvestment opportunities are not going to be equal to the internal rate of return, then it is necessary to make fresh calculations of the internal rate of return taking into account the actual reinvestment opportunity rate of return.

Present value method vs. internal rate of return method.

These two methods may give contradictory results when two investment proposals are mutually exclusive so that only one can be selected. This means that there are important differences between these methods that have to be recognised. To illustrate this point we can take a firm which has two mutually exclusive investment proposals that are expected to generate the following cash flows :

Year	Cash Flows	
	Proposal X	Proposal Y
0	Rs 23,616	Rs 23,616
1	10,000	0
2	10,000	5,000
3	10,000	10,000
4	10,000	32,675

Internal rates of return on proposals X and Y are 25 per cent and 22 per cent, respectively. If the required rate of return is 10 per cent,

however, and this figure is used as the discount rate, the net present values of proposals X and Y are Rs 8,083 and Rs 10,347, respectively. Therefore, proposal X would be preferred if we use the internal rate of return method while proposal Y would be preferred if the present value method is used. If we have to choose only one of these proposals, we would be faced with a conflicting situation.

The conflict between these two methods is due to different assumptions in regard to the reinvestment rate on funds realised from the proposals. The internal rate of return method implies that funds are reinvested at the internal rate of return over the life of the proposal. For instance, the assumptions, the two methods give different ranking of investment proposals.

The question to be answered is which method, internal rate of return method or present value method, is best for purposes of evaluating investment proposals. In fact, the question depends upon what is the appropriate rate of reinvestment for the intermediate cash flows. The ideal solution may be that one should take the expected rate of reinvestment for each period and calculate a terminal value. But this procedure would involve additional calculations that many do not feel to be worthwhile. If a choice must be made, the present value method generally is considered to be superior theoretically. With the internal rate of return method, the implied reinvestment rate will differ depending upon the cash flow stream for each investment proposal under consideration. A high reinvestment rate is assumed for proposals with a high internal rate of return; for proposals with a low internal rate of return a low reinvestment rate is assumed. With the present value method, however, the implied reinvestment rate is the same for each proposal. Actually, this reinvestment rate represents the minimum return on opportunities available to the firm because no proposal should be accepted that yields less than this rate. The reinvestment rate implied by the present value method may be conservative. But it has the virtue of being applied consistently to all investment proposals. To the extent that we can regard the required rate of return as an approximate measure of the opportunity rate for reinvestment, the present value method is preferred over the internal rate of return method.

Basic difference between NPV and IRR methods

The NPV (net present value) method* accepts all independent projects whose NPV is greater than zero, and ranks mutually exclusive projects by their net present values, selecting the project with the higher net present

$$* \text{ NPV} = \sum_{t=1}^N \frac{R_t}{(1+k)^t} - C \quad \dots \text{ Equation (1)}$$

value. The IRR (internal rate of return) method,* on the other hand, finds the value of rate of return that forces the net present value—equal to zero. The IRR method calls for accepting independent projects where r , the internal rate of return, is greater than k , the cost of capital, and for selecting among mutually exclusive projects depending on which has the higher IRR.

The only structural difference between the NPV and IRR methods lies in the discount rates used in the two equations (1 and 2)—all the values in the Equations are identical except for r and k . Further, we can see that if $r > k$ then $NPV > \text{zero}$. Accordingly, the two methods give the same accept-reject decisions for specific projects.

However, under certain conditions, the NPV and IRR methods can rank projects differently, if mutually exclusive projects are involved, or if capital is limited, then ranking can be important. The conditions under which different ranking can occur are as follows: (i) the cost of one project is larger than that of the other, (ii) the timing of the project's cash flows differ. For example, cash flows of one project may increase over time while those of the other decrease, or the projects may have different expected lives.

The effect of differential cash flows can be illustrated by an example. Consider two projects, A and B, whose cash flows over their three-year lives are given as below:

Year	Cash flow from Project	
	A	B
1	1,000	100
2	500	600
3	100	1,100

Project A's cash flows are higher in the early years, but B's cash flows increase over time and exceed those of A in later years. Each project costs Rs 1,200, and their NPVs, discounted at the specified rates, are shown on the next page.

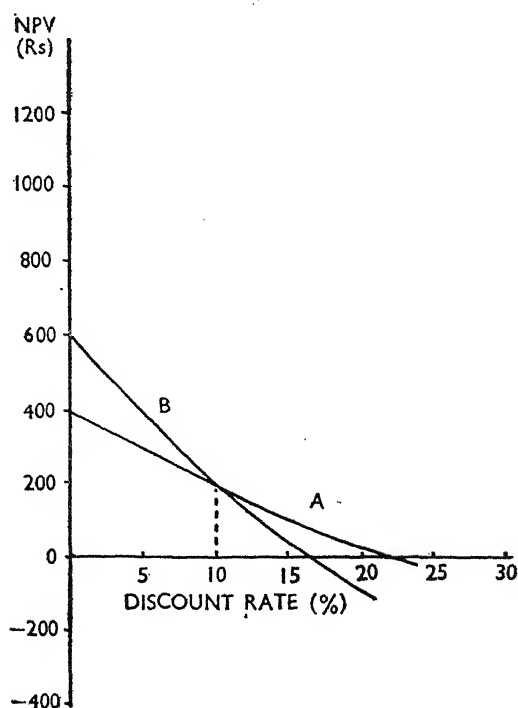
At a zero discount rate, the NPV of each project is simply the sum of its receipts less its cost. Thus, the NPV of project A at 0 per cent is Rs $1000 + 500 + 100 - 1200 = \text{Rs } 400$; that of project B is Rs $100 + 600 + 1,100 - 1,200 = \text{Rs } 600$. As the discount rate rises from zero, the NPVs of the two projects fall from these values.

$$* \text{ IRR} = \sum_{t=1}^N \frac{Rt}{(1+r)^t} - C = 0 \quad \dots \text{Equation (2)}$$

The IRR method finds the value of r that forces NPV equal to zero.

Discount Rate %	NPV	
	A	B
0	400	600
5	300	400
10	200	200
15	100	50
20	50	(85)
25	(25)	(175)
30	(100)	(250)

The NPVs are plotted against the appropriate discount rates in the following Figure, a graph defined as a *per cent value profile*. The vertical axis intercept is the NPV when the discount rate is zero, while the horizontal axis intercept shows each project's IRR. The internal rate of return is defined as that point where NPV is zero; therefore, A's IRR is 22 per cent, while B's is 17 per cent.



It is worth noting that if the cost of capital is below 10 per cent, B has the higher NPV but the lower IRR, while at a cost of capital above 10 per cent A has both the higher NPV and the higher IRR. We can thus

generalise : *whenever the NPV profiles of two projects cross one another, a conflict will exist if the cost of capital is below the cross-over rate.* For instance, no conflict would exist if the firm's cost of capital exceeded 10 per cent, but the two methods would rank A and B differently if K is less than 10 per cent.

If management is seeking to maximise the value of the firm, the correct decision is to select the project with the higher NPV, which measures the project's contributions to the value of the firm. Thus firms should, in general, use the NPV method for evaluating capital investment proposals. Most of the sophisticated firms generally rely on the NPV method. These firms often calculate both the NPV and the IRR, but they rely on the NPV when conflicts arise among mutually exclusive projects.

PROBLEMS OF RANKING THE PROJECTS

The problems of ranking projects can be examined under two heads :
(i) projects with *equal* lives, and (ii) projects with *varying* lives.

Ranking of projects with equal lives. Where the projects have equal lives but are of different size and have different cash flow patterns, an interesting controversy arises in the financial analysis relating to conflict in project ranking between the internal rate of return method and the present value method. There may be instances where cash flow patterns, when discounted, show that one particular project has a higher present worth than the other whereas that very project may have the lower internal rate of return as compared to the other. This point is illustrated in Problems 5 and 6.

Problem 5. A company has to select one of the two following projects whose cost and cash inflows are :

				Project A	Project B
Cost	..	..	..	Rs 11,872	Rs 10,067
Cash inflows					
Year 1	..	..	..	10,000	1,000
2	..	..	..	2,000	1,000
3	..	..	..	1,000	2,000
4	..	..	..	1,000	10,000

Which of these two projects will you select for the company by assuming its cost of capital at 8% ?

Using the internal method, the following rates of return for the two projects are obtained :

Year	Project A			Project B		
	Cash Inflow Rs	12 % Present Value Factor	Present Value Rs	Cash Inflow Rs	10 % Present Value Factor	Present Value Rs
1 ..	10,000	.893	8,930	1,000	.909	909
2 ..	2,000	.797	1,594	1,000	.826	826
3 ..	1,000	.712	712	2,000	.751	1,502
4 ..	1,000	.636	636	10,000	.683	6,830
			11,872			10,067

Using the present value method and the cost of capital of 8% as the minimum rate of return cut-off criterion the following present values are obtained :

Year	Project A			Project B		
	Cash Inflow Rs	8 % Present Value Factor	Present Value Rs	Cash Inflow Rs	8 % Present Value Factor	Present Value Rs
1 ..	10,000	.926	9,260	1,000	.926	926
2 ..	2,000	.857	1,714	1,000	.857	857
3 ..	1,000	.794	794	2,000	.794	1,588
4 ..	1,000	.735	735	10,000	.735	7,350
			12,503			10,721
Profitability Indexes			$\frac{12,503}{11,872} = 1.053$			$\frac{10,721}{10,067} = 1.064$

The rankings under the two methods would be :

	Internal Rate of Return	Present Value Profitability Index
Project A	12% (Accept)	1.053 (Reject)
Project B	10% (Reject)	1.064 (Accept)

The profitability index is found better than the internal rate of return for comparing two projects with different lives or with different patterns

of cash flows. Though the profitability index method is conceptually superior to the internal rate of return method and is also easier to calculate since there is no trial and error computation, the internal rate of return method is more acceptable to the businessmen perhaps due to the following two reasons: (i) the profitability index requires that the earnings rate must be established before the calculations are made and many analysts prefer to work from the other end, i.e., to find the return and then compare it with the earnings rate considered appropriate in view of the risks involved; (ii) the index is an abstract number that does not explain the rate of return whereas internal rate of return is similar to interest and earnings rate quite familiar to the businessmen.

Problem 6. There are two projects, A and B. Project A requires an investment of Rs 400 and is expected to have cash inflows of Rs 110, 120, 130, 140 and 150 over its five-year economic life. Project B, involving an investment of Rs 300, is expected to have cash inflows of Rs 100 each year over its five-year economic life. The opportunity cost of capital for the company, making the selection between these two projects, is five per cent. Which of the two projects will you choose for the company?

The present values of cash inflows of Projects A and B are calculated in the following statement at 6 per cent (1% more than the opportunity cost of capital of 5%) along with the internal rates of return for both the Projects.

*Present Values of Cash Inflows of Project A
at Different Discounting Rates*

Year	Cash Inflows	Dis-count factor at 18%	Total Present Value (2×3)	Dis-count factor at 6%	Total Present Value (2×5)	Dis-count factor at 12%	Total Present Value (2×7)
1.	2	3	4	5	6	7	8
	Rs		Rs		Rs		Rs
1	110	.847	93.17	.943	103.13	.893	98.23
2	120	.718	86.16	.890	106.80	.797	95.64
3	130	.609	79.17	.840	109.20	.712	92.56
4	140	.516	72.24	.792	110.88	.636	89.04
5	150	.437	65.55	.747	112.05	.567	85.05
			396.29		542.06		460.52

*Present Values of Cash Inflows of Project B
at Different Discounting Rates*

Year	Cash Inflows	Discount factor at 20 %	Total Present Value (2 × 3)	Discount factor at 6 %	Total Present Value (2 × 5)	Discount factor at 12 %	Total Present Value (2 × 7)
1	2	3	4	5	6	7	8
	Rs		Rs		Rs		Rs
1	100	.833	83.3	.943	94.3	.893	89.3
2	100	.694	69.4	.90	89.0	.797	79.7
3	100	.579	57.9	.840	84.0	.712	71.2
4	100	.482	48.2	.792	79.2	.636	63.6
5	100	.402	40.2	.747	74.7	.567	56.7
			299.0		421.2		360.5

*Quantitative Considerations Affecting the
Ranking of Projects A and B*

Criteria	Project A		Project B	
Investment	Rs	400	Rs	300
Internal rate of return	nearly	18 %	nearly	20 %
Present Value at 6 %	Rs	542.66	Rs	421.2
Net Present Value at 6 %	Rs	142.66	Rs	121.2
Net Present Value at 12 %	Rs	60.5	Rs	60.5

The internal rate of return, as examined earlier, equates the cash outflows and inflows giving a net present value of zero for the projects measured as of their starting points. The internal rates of return for projects A and B are nearly 18% and 20% respectively. The internal rate of return is an average for the years of project life. It represents the average effective rate of compound interest earned by the project for its investor. If an investor has a standard for earning power based on alternate opportunities available to him, including his cost of obtaining capital, then it is important that a project should earn at least as much as the standard. If the standard is 10%, Projects A and B obviously earn more than that as their internal rates of return exceed 10%. But the questions 'how much more' and 'what is the timing of the receipt of the excess' make a difference.

The present value of cash inflows of Project A, discounted at 6% is Rs 543 as compared to that of Project B of Rs 421. Though Project A has

an internal rate of return lower than that of Project B, the net present value of its inflows at 6% discounting rate is higher than that of Project B. The net present value of the cash flows of both the projects is the same, i.e., Rs 60.5, if discounted at 12%.

A practical approach to solving the problem of ranking the projects with varying cash flows is to determine the cash flow differences of two Projects (A – B in our example) and calculate the internal rate of return for these differences in cash flows of two projects, as given below :

Year			Differences in Cash Inflow (A – B)	Discount fac- tor at 12 %	Total Present Value
0	..	..	Rs 100		
1	..	..	10	.893	Rs 8.93
2	..	..	20	.797	15.94
3	..	..	30	.712	21.36
4	..	..	40	.636	25.44
5	..	..	50	.567	28.35
					100.02

The internal rate of return calculated to reduce these differences to a net present worth of zero comes to 12%. It implies that if the company's cost of capital is 12%, it would be indifferent in making a selection between these two projects because both are expected to give the same net present value of cash flows. If the cost of capital is much less than 12%, say 6%, the extra flows of Project A will provide a differential return and have a positive present worth making Project A the better choice.

The above analysis provides a method to reconcile ranking differences when the present value method and the internal rate of return methods give different rankings. It also shows that a final choice between two competing projects should be guided not by the higher internal rate of return but by comparing the net present value of the excess cash flows.

Certain general statements regarding the ranking problems can be made: (1) For projects of the same size and same life, and project which shows higher cash flows in most periods will have both a higher rate of return and a higher net present value. (2) For projects of approximately the same size but with uniform cash flows but different lives, the rate of return rankings and the present value rankings will be consistent if the life differences are not great, for example, life differences of not more than one year for projects with life expectancies of five years or more. (3) The present value method usually stands out as superior to the rate of return

method for comparisons between competing or mutually exclusive projects. (4) The independent projects should be compared against a standard rate of return (which should ideally be based on cost of capital) and not against each other. In such cases, the ranking problem does not arise. Management is given a signal, favourable or unfavourable, depending upon whether the expected rate of return is above or below the standard. Present value method used in this manner gives the same advice.

Ranking projects with varying lives. While evaluating projects with varying lives, due thought must be given to the reinvestment opportunities existing at the expiration of the different economic lives of the projects. The longer period project will be selected despite its lower internal rate of return, if the estimated investment rate is sufficiently low relating to the internal rate of return. If the expected reinvestment rate is above the internal rate of return of the longer life projects, the shorter-lived project will be preferred as its quicker cash throw-off makes funds available for investment soon. Further, the use of a higher discounting rate creates a bias in favour of the selection of a project producing relatively greater immediate cash inflow.

Some analysts make assumptions about adding another similar investment once the first investment has expired in order to achieve an approximately correct picture of the cash flow patterns of the future.

Another way of dealing with this problem is to cut off the analysis at a point where reasonable estimates cease to exist and estimate of the terminal value of the project is taken as a cash inflow at that point. This approach of cutting off the analysis of alternatives at a reasonable point in time and determining residual value of equipment still in use is a useful device for analysing on a comparative basis long-lived investment alternatives with varying economic lives.

The third meaningful way of handling this problem of varying economic lives is to *annualize* the respective cash flow patterns of the alternative projects under study. The process of annualising the net present value of the cash inflow or outflow of an investment proposal involves conversion of the present value into an annuity over the economic life of the proposal at the suitable opportunity rate. One should first compute the net present value of the irregular flows at the expected earnings rate and then find the level payments that are associated with the present value by dividing the net present value of the project concerned by the respective present value factor. The calculation of annualised net benefit of the project is made as follows :

$$\text{Annualized net benefit of project} = \frac{\text{Net Present Value of Project}}{\text{Present Value Factor of Project}}$$

Problem 7. There are two projects, A and B, likely to involve an investment of Rs 9,000 and Rs 12,000 respectively. The expected cash inflows in the four-year economic life of Project A are : Rs 2,000, Rs 5,000, Rs 4,000 and Rs 3,000 and in case of seven-year economic life of Project B, they are : Rs 2,000, Rs 3,000, Rs 3,000, Rs 5,000, Rs 5,000, Rs 4,000 and Rs 1,000. The expected earnings rate is 15%. Which of the two projects would you recommend ?

At 15% the net present value of cash flows of Project A and B would be as follows :

Year		Present Value factor at 15%	Project A		Project B	
			Cash Inflows	Total Present Value	Cash Inflows	Total Present Value
			Rs	Rs	Rs	Rs
1	..	.870	2,000	1,740	2,000	1,740
2	..	.756	5,000	3,780	3,000	2,268
3	..	.658	4,000	2,632	3,000	1,974
4	..	.572	3,000	1,716	5,000	2,860
5	..	.497			5,000	2,485
6	..	.432			4,000	1,728
7	..	.376			1,000	376
Total Present Value ==				9,868		13,431
Net Present Value ==				868		1,431

	A	B
1. Net Present Value at 15%	Rs 868	Rs 1,431
2. Factor, 4-Year annuity (Table B)	2.855	
3. Factor, 7-Year annuity (Table B)		4.160
4. Annualizing	$\frac{868}{2.855} = 304$	$\frac{1,431}{4.160} = 344$
5. Profitability Index	1.096	1.119

The annualizing net benefit number can be compared directly with similar results for projects with entirely different lives and cash flow patterns. This device enables a comparison on a common basis and goes a long way towards facilitating the task of capital budgeting. Profitability index would also help in comparing projects with unequal lives.

Conclusion. The internal rate of return method provides the actual rate which is a convenient analytical tool and among the time-adjusted methods, it is widely used. Those who prefer the present value approach argue that there is an assumption made in case of internal rate of return

method that funds can be constantly reinvested at the rate of return—an assumption which may be unrealistic particularly if the rate happens to be a high one which is not possible in a socialist society. On the other hand, the present value method usually employs the cost of capital as the discounting rate, an assumption which comes closer to actuality. Another criticism made of the internal rate of return method is that when projects include negative earnings during their economic lives, the calculation may result in multiple rates of return.

In the present value method, the selection of the cost of capital is most crucial to discount the stream of cash flows. If cost of capital is used, should it be cost of debt capital, equity capital or mixed capital? If a relatively low discounting rate is used, a greater weightage would be given to long-range cash flows, while a higher discounting factor would give more weight to the flows of early years. As the discount rate rises, distant money assumes relatively less value and the difference between the present worth of long- and short-lived projects becomes insignificant.

We can hardly over-emphasize the fact that the time-adjusted methods should not obscure the important fact that the accuracy of these methods can be no better than the underlying data. Decisions with regard to the future invariably are made in an environment of uncertainty rather than of certainty. Accordingly, attention must be paid to the development of effective means of forecasting cash flows.

CAPITAL RATIONING

Capital rationing situations arise when a firm operates within a fixed budget. A firm cannot accept all projects which are expected to increase its present value. The constraints which lead to a decision to hold capital expenditures to a fixed sum may arise due to market conditions or may be entirely self-imposed. Market constraints become effective because the short-run curve of capital will ordinarily move upward though the long-run supply curve may be elastic. Many companies, even those coming in the category of 'growth', restrict budgets to the amount they believe can be raised from "reasonably priced" sources which do not lead to "excessive" leverage resulting in high levels of risk. For such companies there is an 'optimum' capital structure, not dependent on the cost of capital situation but determined by the maximum probability of default on debt which is acceptable to management or shareholders.

The other consideration for capital rationing policy is to restrict investment to the funds available from depreciation accruals plus retained earnings, i.e., "cash throw-off" generated by internal operations. Such policy may reflect extreme risk aversion on the part of management. It overlooks the possibility of financing greater expansion with equity raised

by way of a rights offering, or the judicious use of long-term debt or convertible or redeemable senior securities. Such policy may originate from a combination of risk aversion with a concern for retaining control on the part of an insider group who may not wish to increase their own investment for reasons of their own. They may perhaps have more profitable opportunities elsewhere.

The need for capital rationing also arises where the rate of growth is restrained because of shortages of skilled personnel or critical material or licences or foreign exchange.

A distinction must be made among minor and severe cases of capital rationing. In the minor cases the present value method may be used with confidence as against the more severe forms of capital rationing where it is no longer correct to use a constant rate of discount for all future years. The rate of discount used for each future year must reflect the cost of obtaining funds, the value of external investments available to the firm, and the desire of the owners for present *versus* future proceeds.

The annual capital budget of a firm often includes proposals for a great number of projects. While some may be adopted because of their urgency or legal requirements, the remaining projects have to be judged on the basis of the available funds and of the rate of return. A combination of proposals with the highest rate of return may not always be the best. On the other hand, the optimum combination is made up of investment with the highest incremental rate of return or profitability indices.

Problem 8. The total available budget of a firm is Rs 200 million and the total cost of projects is Rs 250 million. The projects have been ranked in order of profitability. There is a possibility of substituting X project whose cost is assumed to be Rs 130 million and it has a profitability index of 140.

Projects	Cost (Rs. in million)	Profitability Index
		$\left(\frac{\text{Present Value of Cash Inflows}}{\text{Present Value of Cash Outflows}} \times 100 \right)$
A	60	150
B	50	125
C	70	120
D	20	115
E	50	110
	250	

Solutions	Project	Cost	Profitability Index	Present Value (2 × 3)
	1	2	3	4
I	A	60	150	90.0
	B	50	125	62.5
	C	70	120	84.0
	D	20	115	23.0
		<u>Rs 200 million</u>		<u>Rs 259.5 million</u>
II	X	130	140	182.0
	C	70	120	84.0
		<u>Rs 200 million</u>		<u>Rs 266.0 million</u>
	A } B } D }	Rejected		
III	X	130	140	182.0
	B	50	125	62.5
	D	20	115	23.0
		<u>Rs 200 million</u>		<u>Rs 267.5 million</u>
	A } C }	Rejected		

It may be clear that solution II is preferable to I as its present value is greater than that of I. Similarly, solution III is preferable to II. In each case the reason is that the incremental return is greater, even though the profitability index of project A is greater than that of project X. The incremental approach adopted in Solution II can be illustrated as follows :

Project	Cost	Present Value	Profitability Index
A	60	90	
X	130	182	
	<u>70</u>	<u>92</u>	131
Rejections: B	50	62.5	
D	20	23.0	
	<u>70</u>	<u>85.5</u>	122

The incremental investment of Rs 70 million shows a profitability index of 131 as against an index of 122 for the rejected projects B and D that are eliminated in solution II. Project C eliminated in solution III had a profitability index of only 120.

Solution IV (as given below) can also be tried to the above problem.

Project	Cost	Profitability Index	Present Value
X	130	140	182
A	60	150	90
	<hr/> 190		<hr/> 272

Solution IV will involve a reduced commitment of funds to the extent of Rs 190 million only and present value of Rs 272 million is maximum as compared to Solutions I, II and III and profitability index improves to 143.

SIZE OF CAPITAL BUDGET

There are three main approaches to the problem of size of capital budget. They are as follows: (i) The fixed or "rationing" type capital budget. Under this approach budgeted amount is determined by available cash flow and projects are selected within this established limit. (ii) The open end or "financing" type capital budget. Under this method budgeted amount is established by funds requirements of desirable projects and additional financing is planned to take advantage of favourable opportunities. (iii) A "one-at-a-time" approach. Each capital expenditure project is decided on its merit as proposals are made during the year. Financing is arranged as needed, but projects may be disapproved if funds are not available. This essentially means that the capital expenditures are managed without a budget. The study of National Association of Accountants (Research Report 43, 1967) on the *Financial Analysis to Guide Capital Expenditure Decisions* shows that intensive forward planning favours the financing type budget because it implies careful project planning and a willingness of the company to raise new capital when planned growth is judged profitable. This approach was used by 20 out of 28 companies examined under this study.

The rationing approach is concerned with how to pick the best projects to fill out a fixed amount of planned spending. The amount of capital budget is set first and then "rationed" among the most desirable projects proposed. It will be seen that the financing type approach is more flexible because the size of the capital budget is determined by the number of the investment opportunities rather than the availability of funds as such. The theory underlying the financing approach is that a company will maximise the level of profits for shareholders if it selects a level of capital spending for which the marginal return on projects is equal to the marginal cost of capital. This principle is similar to the idea of maximising a cost-profit-volume relationship by taking on every piece of business if the incremental revenue is greater than the incremental cost. The cut

off rates are arrived at either by studying the return on investment in the company and its competitors or by deciding the rate of return which management wants in order to maintain a favourable attitude on the part of shareholders and investors. By merging these ideas a rate or set of rates are used as guidelines in capital budgeting work.

Capital budget optimisation. Regardless of the conceptual and practical problems involved in the cost of capital, the optimising principle implied in the financing approach to capital budgeting can be illustrated as follows :

Let us assume that a company has got a list of projects for a coming year which involve a total investment of Rs 10 lakhs if all are approved and they promise individual rates of return ranging from 30 per cent down to 10 per cent. These rates may be called a "schedule" of the marginal return on capital. They are plotted as a series of steps on the graph (Exhibit 1). The weighted average returns of these alternate budget

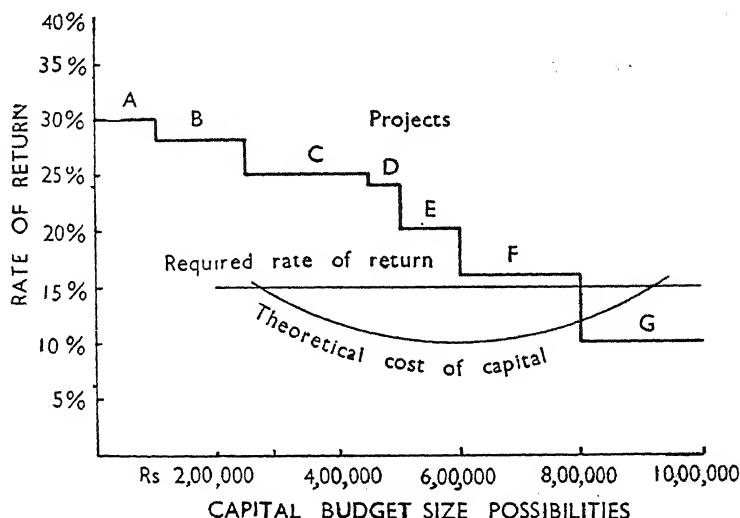
Exhibit 1

*Determination of Capital Budget Size by Matching
Prospective Rates of Return with the Required
Rate of Return*

Project	Proposed Projects			
	Capital Required		Rates of Return	
	Project	Cumulative	Per Project	Average
	Rs	Rs		
A	1,00,000	1,00,000	30%	..
B	1,50,000	2,50,000	28%	29
G	2,00,000	4,50,000	25%	27
D	50,000	5,00,000	24%	27
E	1,00,000	6,00,000	20%	26
F	2,00,000	8,00,000	16%	23
G	2,00,000	10,00,000	10%	21
Planned Availability of Capital				
Current Depreciation Allowance			Rs	5,00,000
Retained Earnings				2,00,000
Debt Financing—Tentative Limit				
(Explicit Depreciation Allowance)				3,00,000
				<hr/> 10,00,000

sizes have also been calculated, that is, 23 per cent for all projects except Project G and 21 per cent if Project G is included at 10 per cent.

A required rate of return of 15 per cent is assumed and a line is drawn on the graph. The optimal capital budget on this basis is Rs 8,00,000 as all projects promising 15 per cent or over add upto Rs 8,00,000.



One way of showing that this is optimum is to compare a Rs 5 lakh budget with the Rs 8 lakh budget to see how much excess over the required rate of return is provided in each case.

	Rs
Excess available from the Rs 8 lakh Budget	
Rs 8,00,000 at the average rate of 23 %	.. 1,84,000
Rs 8,00,000 at the required rate of 15 %	.. 1,20,000
	<hr/> 64,000
Excess available from the Rs 5 lakh Budget	
Rs 5,00,000 at the average rate of 27 %	.. 1,35,000
Rs 5,00,000 at the required rate of 15 %	.. 75,000
	<hr/> 60,000
Advantage of the Rs 8 lakh Budget over the Rs 5 lakh Budget (64,000—60,000)	.. 4,000

Further, when compared with investing the entire Rs 10 lakhs, the Rs 8 lakh Budget still shows an advantage as follows :

Excess available from the Rs. 8 lakh Budget as calculated above	..	64,000
Excess available from the Rs 10 lakh Budget		
Rs 10,00,000 at the average rate of 21 %	..	2,10,000
Rs 10,00,000 at the required rate of 15 %	..	1,50,000
		<hr/>
		60,000
		<hr/>
Advantage of the Rs 8 lakh Budget over Rs 10 lakh Budget (64,000 — 60,000)		4,000

Carrying the illustration further, the Rs 8 lakh Budget will require borrowing Rs 1,00,000. It may be argued that if Rs 1,00,000 can be borrowed at 5% after-tax explicit cost, it would be worthwhile to include Project G at 10 per cent. But the trouble with this approach is that it does not consider the effect of going into debt. The presence of debt may affect dividend expectations, future borrowing rates, and current and future stock market prices. If so, these are indirect capital costs which need to be considered with the pure interest cost in formulating the required rate of return for capital budgeting purposes. It can, however, be noted that the financing approach results in management's taking better advantage of investment opportunities, though utmost care should be taken in formulating the required return on investment.

NEW ANALYTICAL TECHNIQUES FOR CAPITAL EXPENDITURE EVALUATION

The recent developments in management science are having considerable impact on the capital budgeting methods. There has been a steady development of techniques designed to aid the capital expenditure decision process. Some of these are new such as mathematical programming, while others like simulation and risk analysis are useful combinations and refinements of analytical methods which are already in use in the area of economics and statistics. Some of these new techniques are : (1) sensitivity analysis; (2) risk analysis; (3) simulation and models; (4) linear programming; and (5) cost estimates using the critical path method and PERT. These five analyses have received considerable attention in articles written on capital expenditure analysis during the recent years.

Sensitivity analysis. This is an effort to show how project profitability can be affected by variations or changes in an element of project revenue, operating cost or investment. A thorough sensitivity analysis displays in graphical or tabular form how much project income and rate of return will differ from the project estimate if sales, labour cost, or some other factor does not come out as expected. Variations in price, volume, wages, materials cost and project investment are factors usually considered in

such calculations. They may be varied as a single factor or in combination. This analysis presents a variety of outcomes so that the analysis and the decision maker can look at the impact of the range of possibilities.

Risk analysis. The common form of risk analysis in project evaluation involves attaching of probability factors to revenue, cost or other elements of the proposal. Calculations are then made for the likelihood of the possible project results. The three-level project estimate can be prepared to show high, low and middle figures for profit or two possible outcomes may be calculated to show an optimistic result and a pessimistic result. Such analysis gives management an opportunity to judge the risk element of a project.

Simulation and models. The process of simulation has not only wide variety of uses in financial analysis but also in capital budgeting. Simulation, basically, consists of one or more trial runs of a process to learn that its possible outcomes—using a model that is as representative as is necessary for the simulation to be realistic. Such models may be simple or complicated depending upon the complexity of the project to be simulated. Simulation is helpful where the key factors in a business problem are expected to take on various patterns of variation and it is impossible to settle on single values for estimating purposes. Sales orders, material prices, material delivery, waste, machine performance, labour availability and labour performance are factors where it often seems better to let them take on extreme values or random values to see where the project looks favourable. To use a single state of factor estimates is often an artificial approach. This is one reason why production and inventory problems are studied with the help of simulation.

Linear programming. This is a type of mathematical analysis which applies to situations where there is a need to select the best combinations of methods to accomplish a given end and there are definite limits on one or more of the factors or resources involved. Linear programming can be related to capital expenditure analysis in the same way as any analytical method of determining relative profitability or a least cost combination. While a decision to invest in a given project is normally based upon its prospective rate of return or present value, the choice of equipment or the profit contribution of the proposed project might well be based on a linear programming analysis. Linear programming, like any other analytical technique used in business, relies solely on cost behaviour data, standard costs, contribution margin, and other accounting information. Standard computer programmes are available for solving the linear programming problems.

Critical Path Method and PERT. These techniques help in project plans, especially in estimating completion time and establishing control

over time schedule. The basic principle involved in both of these techniques is the development of a network of project tasks for turning the critical path which identifies those events most crucial to completing the project in time. These approaches help in improving the project schedule as areas of excess slack or no slack can be balanced and tasks can be rearranged for the plan most advantageous to its overall purpose. Though both CPM and PERT are designed mainly for time planning, they can be combined with cost estimates. Complex CPM or PERT applications are handled with the aid of a computer.

Computers in project analysis. It is becoming increasingly practical and popular to use a computer for mathematical financial analysis even for problems that can be worked out manually. There are standard programmes available that make it convenient for users of computers to perform actuarial and statistical computations including the calculation of project rate of return and present value. There has been a favourable trend towards the development of simplified and flexible programme and companies can now readily develop computer programmes for project analysis or for other types of cost and profit analysis tailored to their own needs.

The techniques referred to above are by no means the only ones. Operations research specialists, statisticians, industrial engineers and the new generation of analytically oriented accountants are equipped with a variety of analytical tools designed to estimate relative profitability, and to make a choice of methods or show how a given project or programme would work out.

The modern methods of analysis have not yet altered the basic features of capital budgeting procedure. Projects are formulated, screened, budgeted and submitted for approval. After approval, the projects are executed and operations start subject to cost control and possible post-audit. These steps are in the context of long range and annual planning. Risk analysis, sensitivity analysis and other new techniques are increasing the quality of project analysis and presentations but have left the framework of decision and control the same as before.

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Cost of Capital

[The cost of capital is an important concept in formulating a firm's capital structure.] It is one of the basic corner-stones of the theory of financial management. In recent years, it has received considerable attention from both theorists and practitioners. Two major schools of thought have emerged having basic difference on the relevance of this concept. In both the camps, optimal policy is taken as the policy that maximises the value of a company. In one camp, where we find Modigliani-Miller (see Appendix) it is argued that a corporation's cost of capital is constant and it is independent of the method and level of financing. Optimal policy is the investment that equates the marginal return on investment with this cost of capital. The unavoidable conclusion is that financing policy is not a problem. The opposite point of view is that a corporation's cost of capital varies with the method and level of financing.¹

The cost of capital is still largely an academic term and the problem of measuring it in operational terms is a recent phenomenon. Prior to this development the problem was either ignored or by-passed. The focus of traditional economic theory was on refinements to the certainty or certainty-equivalent models of investment analysis. Business firms have not been able to solve the problem of fixing financial standards in an uncertain world. Management in progressive enterprises, however, set minimum standards of required performance and decide the size and composition of capital structures. Whether or not these standards are

¹This academic battle is lively and productive. For a long time the position that cost of capital is constant was held almost exclusively by economists who were sophisticated in methods of theoretical and econometric analysis but knew little of finance. By contrast, the position that the cost of capital is variable was held by finance men who were familiar with their subject but not with advanced methods of theoretical and empirical research. People in each group talked only to those who agreed with them. Fortunately, the position has now changed.

expressed in terms of cost of capital, management has to develop some basis for making these decisions. Decisions on investment are such broad ones that it is easy to argue that they are made on the basis of a whole constellation of variables. This evades the question on how specific minimum standards of financial performance are set or what they are. Major capital structure decisions have traditionally been conducted in a citadel close to the top and the top has always been reluctant about stating its own logic explicitly.

Relevant costs. It is desirable at this place to examine the "relevant" costs of capital. Often the current interest rate on long-term debt is treated as a firm's marginal cost of capital. This cost of debt is *explicit* and has to be distinguished from *real*. The explicit cost of debt tends to rise as proportionate amount of debt in a firm's total capitalisation increases. The firm's risk, flexibility and leverage characteristics are adversely affected with an increase in debt content in its capital structure and these changes imply additional but 'hidden' costs. The real cost of raising more debt is, therefore, substantially higher than explicit cost.

For decision-making purposes, *future* costs and not *historical* ones are relevant. Similarly, distinction should be made between the cost of capital of a *specific* source of fund, i.e., debt, equity, preference shares, and the *inclusive* cost of funds which at any time reflects the amount of funds available to a firm at a particular time from various sources at different prices. This cost is also referred to as the *average* cost of funds as against the *marginal* or specific cost of funds. The concept of inclusive cost is relevant for investment decisions and most financing decisions. It is only in financing decisions involving alternatives which may not affect the firm's capital structure (as in the selection of two alternative debentures of similar size) that it is appropriate to use specific costs as a criterion for decision-making.

Distinction should also be made between *spot* costs, i.e., those prevailing in the market at a certain time, and *normalised* costs, i.e., those that reflect, by some averaging process, an estimate of costs from which the cyclical element is removed. Spot costs can be considered in financing decision while the normalised costs are used in investment decisions.

MEASURING COST OF CAPITAL

The measurement of a company's cost of capital is not an exact procedure. It is based largely on forecasts that, of course, are subject to various margins of error. The computed value for cost of capital can, therefore, be regarded as a fair approximation of the cost of capital

inputs consistent with company needs, the conditions under which it is raising its capital, the level of expectation and corporate policy constraints. As more than one type of capital is used in a company, the composite cost of capital can be determined after the cost of each type of funds has been obtained. The first step, therefore, in the measurement of a company's cost of capital is the calculation of each specific cost which is the minimum financial obligation that is incurred in order to secure the use of capital from a particular source.

✓ (a) **Cost of debt.** The cost of debentures and long-term loans is the contractual interest rate adjusted further for the tax liability of the company, or $K = (1 - T)R$, where K is the cost of debt capital, T is the marginal tax rate and R is the contractual interest rate. Because of the tax deductibility of interest, it is customary to compute the cost of borrowed funds as an after-tax effective rate of interest. But the use of a tax-adjusted effective rate of interest is justified only when earning before interest and taxes (EBIT) is equal to, or exceeds, the interest charges. If EBIT is negative, the tax shield does not apply and the actual cost of borrowed funds is equal to the before-tax effective rate of interest.

For determining the real cost of debt, it is necessary to consider not only contractual costs but also the imputed costs. The cost of debt finance rises above the contractual rate of interest as more debt finance is used (a) because actual rate of interest will rise, and (b) the total debt cost should include not only the interest paid but also an additional hidden cost of borrowings that can be imputed from the decline in the rate at which earnings on equity shares are capitalised. If it were not for these two factors which cause the overall cost of debt to rise, it would be hard to imagine that management would ever finance investment by any means other than debt.

✓ (b) **Cost of preference shares.** The method of computing cost of preference shares is similar to that used for debentures. If 11% preference share (par value Rs 100) is sold at Rs 100 and the issue expenses incurred by the company amount to Rs 2 per share, the cost of preference issue is

$$\frac{\text{Preferred Dividend}}{\text{Net price of preference share}} = \frac{D}{P} = \frac{11}{100 - 2} = \frac{11}{98} = 11.22\%$$

✓ (c) **Cost of equity capital.** The calculation of the equity capital's cost raises a host of problems. Its purpose is to enable the corporate management to make decisions in the best interest of the equity holders. In theory, the management strives to maximise the position of the equity shareholders and this effort involves many decisions in respect of capital expenditures and financing. The cost of equity capital indicates the

minimum rate which must be obtained on the projects before their acceptance and the raising of equity capital to finance them, *i.e.*, it should lead to an increase in the net present value of their wealth. Any investment decision that results in maximising the present value of the equity owners' holding in a company would be satisfactory to them.

There are four approaches for estimating cost of equity: (i) D/P (Dividends/Price) ratio; (ii) E/P (Earnings/Price) ratio; (iii) D/P+g (Dividend/Price+growth rate of earnings); and (iv) Realised Yield Approach.

(i) *D/P ratio approach.* The D/P ratio approach is based on the thinking that return so calculated is what the investors expect when they put in their savings in a company. It means that the investor arrives at a market price for a share by capitalising a set of dividend payments which are fixed for all time to come at a given level. It may be seen that this approach wrongly assumes that the company will not earn on its retained earnings and that the retained earnings will result in neither an appreciation of the market price nor an increase in dividends. This approach also ignores the fact that the shareholder receives a growing stream of dividends while he holds the shares and capital gain (or loss) when the share is sold.

(ii) *E/P ratio approach.* The E/P ratio assumes that shareholders capitalise a stream of unchanged earnings by the capitalisation rate of E/P in order to evaluate their holdings. The advocates of this view, however, differ on the use of earnings figure and market price. Some simply use the current earnings in current market price for determining the capitalisation rate while others recommend an average of earnings as well as of the price over some period in the past. The selection of the market price to which the expected earnings should be related poses an important problem. It may involve considerable value judgment. The E/P ratio approach has three limitations: (a) all earnings are not received directly by the shareholders in the form of dividends; (b) earnings per share cannot be expected to be constant, as this approach emphasizes; and (c) share prices do not remain constant because shareholders expect capital gains as a result of the investment of retained earnings.

(iii) *D/P+g approach.* This approach has been advocated by Shapiro, Gordon and Solomon. It stresses the attention on what the investor actually receives, *i.e.*, dividend plus the rate of growth in dividend. The growth rate in dividend (*g*) is assumed to be equal to the growth rate in earnings per share. In other words, if the earnings per share grow at a rate of 5% per year and if dividends are a constant

fraction of these earnings, then the growth rate in dividends per share is the same as the growth rate in earnings per share. It is claimed that this approach gives an accurate estimate of the return which the shareholders will actually realise only if the future price-earnings ratio is the same as the current price-earnings ratio, and earnings as well as dividends grow at the same rate. Removal of these assumptions, it may be noted, will affect the validity of this approach. The advantage of this approach over the historic E/P approach lies in the fact that it relies exclusively on relatively current data and future estimates. But certain difficulties arise in the practical application of this approach. It is difficult to determine the rate of growth of price appreciation expected by a shareholder when he is willing to pay a certain price for a current dividend.

(iv) *Realised yield approach.* In order to remove the difficulty of estimating the rate of return that investors expect on equities where future dividends and the sale price are both uncertain, it is suggested that the rate of return actually realised for a period of time by investors in a particular company is a better approach to determine the cost of capital. Suppose an investor purchased one share of XYZ Company at Rs 240 on January 1, 1970, and after holding it for five years, sold the share in early 1975 at Rs 300. During this period of five years, he received a dividend of Rs 14 in 1970 and 1971 and Rs 14.50 from 1972 to 1974. His rate of return on discounted cash flow, as computed below, comes to nearly 10%.

Year	Dividend (Rs)	Sale Price (Rs)	Discount factor at 10%	Jan. 1, 1970 Value (Rs)
1970 (ending)	14.00		.909	12.7
1971 ,,	14.00		.826	11.6
1972 ,,	14.50		.751	10.9
1973 ,,	14.50		.683	9.9
1974 ,,	14.50		.621	9.0
1975 (beginning)		300	.621	186.3
				<u>240.4</u>

Total 1970 value of 1970-1974 Dividends
and early 1975 Sale Price

=Rs 240.40

1970 Purchase Price

=Rs 240.00

Discount rate which equates Dividends
and Sale Price to initial Purchase Price

=10%

In the absence of compelling reasons to the contrary, the advocates of this approach suggest that it can fairly be assumed that past behaviour will materialise in the future and the historic *realised* rate of return would be an appropriate indicator of prospective investor's *required* future rate of return. The realised yields may vary if the investors purchase and sell shares particularly in good or bad times. But in the long period, a central tendency of realised yields in different phases of business cycle should be determined.

The realised yield approach is helpful as it reflects investor's required rate of return. But three requirements have to be met to apply this approach: (i) the company should remain fundamentally the same regarding risk; (ii) the rate of return which the shareholders require for bearing this risk must also remain the same; and (iii) the investor's re-investment opportunity rate must be equal to the realised yield.

To determine the cost of equity capital, it is necessary to *classify companies on the basis of income, cyclical and growth characteristics*. The market price of equity share in a company with a stable income normally does not fluctuate widely but the problem does arise as to what market price should be used as a basis for calculating equity capital. The present market price may be of limited value as the basis for projecting the market price that will be relevant at the time when equity capital will be raised. An average market price can be measured in such cases.

The problem of finding the market price of shares in cyclical companies poses a big challenge because of high volatility of earnings and market price per share. In cyclical companies, attempt should be made to find an average E/P ratio over the period of trade cycle.

The explicit cost of equity in growth companies is usually very low because of high price-earnings ratio. Shares of such companies are purchased because of the prospects that the earnings will grow rapidly, thereby increasing market price sharply so that ultimately substantial capital appreciation can be realised. Equity holders in such companies are less concerned with the immediate return but, on the other hand, are more interested in capital appreciation. The $D/P + g$ approach is most appropriate to determine the cost of equity capital in such companies.

✓ **(d) Cost of retained earnings.** There is a mistaken view to treat these funds as cost-free. This view seems to rest on the assumption that the company is separate from the equity share-holders and that it costs the company nothing to withhold the earnings from them. Retained earnings, in fact, are not without cost. The cost of re-invested profits to shareholders is the opportunity cost of such funds to

them. It is equal to the income that they would otherwise obtain by placing these funds in alternative investments.

The opportunity cost of retained earnings to the shareholders is the rate of return that they can obtain by investing the after-tax dividends in alternative opportunities of equal quality. If earnings are paid as dividends and a simultaneous rights offer is made, shareholders would be subject to tax on the dividend and would only be able to subscribe an amount equal to $(1-T)D$, where T stands for the marginal tax rate applicable to the individual shareholder and D for dividends. To be as well off as he would be under the rights offering, it is necessary that the value of his shares rises by an amount which, after making due provision for any tax on capital gains, is equal to the net dividend he would have received after tax. Thus, the cost of retained earnings can be expressed as :

$$\frac{(1-T_i)D}{(1-T_c)P}$$

where T_i stands for marginal income tax and T_c for capital gains tax. For instance, if a company is paying a dividend of Re 1 per share and its shares yield 12.50% at a market price of Rs 8, then the required rate of return for a shareholder in the 75% tax bracket subject to a capital gains tax rate of 25% is:

$$\frac{(1-0.75) 1.00}{(1-0.25) 8.00} = 4.6\%.$$

However, for a shareholder in the 40% marginal tax bracket subject to a capital gains tax of only 20%, the required return would be :

$$\frac{(1-0.40) 1.00}{(1-0.20) 8.00} = 9.375\%.$$

For the non-taxable shareholder, the minimum required return would be the full 12.50%. It may thus be apparent that the cost of retained earnings to a firm is claimed to be a function of personal income tax rates of its shareholders. But the multiplicity of the shareholders' tax rates makes the application of this approach rather difficult. In a publicly held company, there are a great number of shareholders of various means and incomes and, therefore, there can hardly be a single tax rate that would correctly reflect the opportunity cost of retained earnings to every shareholder. Even in a closely held family business, not all of its owners are exactly alike in respect of their positions regarding incomes and taxes. The management has to exercise its judgment in selecting the marginal tax of "typical" shareholder. This is obviously not an easy task.

Some financial analysts do not see the need for adjusting the market capitalisation rate for shareholders' tax liability and thereby suggest that the cost of retained earnings is the same as the market rate of capitalisation for the equity share. They argue that the cost of retained earnings is the opportunity cost to the company and not to the shareholder and it does not seem reasonable that management should consider the tax position of its shareholders.

As a practical matter, if the overall rate of return on equity capital is determined by using the market value of ordinary shares, the need for determining the separate rate for retained earnings disappears because both the weighing factor and the rate of return are embodied in market values.

The cost of equity obtained by retained earnings can be defined as: *the rate of return shareholders require on the firm's ordinary shares.* The value of an ordinary share depends, ultimately, on the dividends paid on the stock:

$$P_0 = \frac{D_1}{(1+K_r)^1} + \frac{D_2}{(1+K_r)^2} + \dots \quad (\text{Eq. 1})$$

Here P_0 is the current price of the stock; D_t is the dividend expected to be paid at the end of year t , and K_r is the required rate of return. If dividends are expected to grow at a constant rate, equation 1 reduces to

$$P_0 = \frac{D_1}{K_r - g} \quad \dots \quad (\text{Eq. 2})$$

In equilibrium, the expected and required rates of return must be equal, so we can solve for K_r to obtain the required rate of return on ordinary shares:

$$K_r = \frac{D_1}{P_0} + \text{expected } g \quad \dots \quad (\text{Eq. 3})$$

Example

A firm expected to earn Rs 2 a share and to pay Re 1 dividend during the coming year. The firm's earnings, dividends and stock prices have all been growing at about 5 per cent a year, and this growth rate is expected to continue indefinitely. The stock is in equilibrium and currently sells for Rs 20 a share. Using this information, we can compute the required rate of return on the stock in equilibrium, using Equation 3 as follows:

$$K_r = \frac{\text{Re } 1}{\text{Rs } 20} + 5\% = 10\%.$$

The expected growth rate for the price of the shares is 5 per cent, which, on the Rs 20 initial price, should lead to a Re 1 increase in the value of the stock, to Rs 21. This price increase will be attained if the

firm invests Re 1 of retained earnings to yield 10 per cent. However, if Re 1 is invested to yield only 5 per cent, then earnings will grow by only 5 paise during the year, not by the expected 10 paise a share. The new earnings will be Rs 2.05, a growth rate of only $2\frac{1}{2}$ per cent. If investors believe that the firm will earn only 5 per cent on retained earnings in the future and attain only a $2\frac{1}{2}$ per cent growth rate, they will reappraise the value of the stock downward according to Equation 2 as follows :

$$P_o = \frac{D_1}{K_r - g} = \frac{\text{Re 1}}{.10 - .025} = \frac{\text{Re 1}}{.075} = \text{Rs 13.33}$$

This means that the firm will suffer a decline in the value of its shares if it invests equity funds—retained earnings—at less than its rate of return. Thus, if a firm earns less than K_r , the stock price will fall; if it earns more, the stock price will rise. On the other hand, if a firm earns its required rate of return, K_r , then when it retains earnings and invests them in its operations, its current stock price will not change as a result of this financing and investment.

(e) Cost of newly issued ordinary shares or external equity.

The cost of new ordinary shares, or external equity capital, is higher than the cost of retained earnings because of floatation costs involved in selling new equity shares. What rate of return must be earned on funds raised by selling stock to make the action worthwhile? To put it in another way, what is the cost of new ordinary shares? The answer can be found by applying the following formula :

$$K_e = \frac{D_1}{P_o(1-F)} + g = \frac{D_1}{P_n} + g = \frac{\text{Dividend yield}}{\text{Po (1-flotation percentage)}} + \text{growth} \quad \dots \text{ (Eq. 4)}$$

Here F is the percentage cost of selling the issue, so $P_o(1-F) = P_n$ is the net price received by the firm. For example, if $P_o = \text{Rs } 20$ and $F = 10$ per cent, then the firm receives Rs 18 for each new share sold; hence $P_n = \text{Rs } 18$. This approach is strictly applicable only if future growth is expected to be constant :

$$K_e = \frac{\text{Re 1}}{\text{Rs } 20(1-.10)} + 5\% = 10.55\%$$

If the firm earns 10.55 per cent on investments financed by new ordinary shares, then earnings per share will not fall below previously expected earnings; its expected dividend can be maintained; the growth rate for earnings and dividends will be maintained; and, as a result of all this, the price per share will not decline. If the firm earns less than 10.55 per cent, then earnings, dividends and growth will fall below expectations, causing the price of the stock to decline. As the cost of capital is defined as the rate of return that must be earned to prevent the price of the stock from

falling, we see that the company's cost of external equity K_r , is 10.55 per cent.

Thus, the basic rate of return which investors require on a firm's ordinary stock is a most important quantity. This required rate of return is the cost of retained earnings, and it forms the basis for the cost of capital obtained from new stock issues. How is this all-important quantity estimated? One can use very involved and complicated procedures for making this estimation. But satisfactory estimates may be obtained in the following way.

The expected rate of return is analogous to the internal rate of return on a capital project. It is the discount rate that equates the present value of the expected dividends and final stock price to the present stock price. It consists of two components, an expected dividend yield and an expected capital gains yield,

$$K_s = \frac{\text{Expected dividend}}{\text{Present price}} + \frac{\text{Expected increase in price}}{\text{Present price}} = \frac{D_1}{P_0} + g \quad (\text{Eq. 5})$$

According to generally accepted theory, stock prices are determined as the present value of a stream of cash flows. For an individual investor, cash flows consist of dividends plus capital gains. We have to measure the rate of growth at which dividends are expected to increase. If future growth is expected to be zero, the value of the stock reduces to the following formula:

$$P_0 = \frac{D_1}{K_s} = \frac{\text{Dividend}}{\text{Capitalisation rate}}$$

Solving for K_s , we obtain

$$K_s = \frac{D_1}{P_0}$$

which states that the required rate of return on a share that has no growth prospects is simply the dividend yield.

Year after year, the earnings and dividends of most companies have been increasing. It is expected that an average or normal company will grow at a rate of 3 to 5 per cent a year. Security analysts regularly make earnings growth forecasts, looking at such factors as projected sales, profit margins, competitive factors, and the like. Someone making a cost of capital estimate can obtain such analysts' forecasts and use them as a proxy for the growth expectations of investors in general—assumption being that g is expected to remain constant in the future.

However, firms typically go through "life cycles" during part of which their growth is much faster than that of the economy as a whole. They

may anticipate a period of 'super-normal' growth before settling down to a normal growth rate; still others may grow in a random fashion.

We should recognise that both careful analysis and fine judgment are required in estimating equity capital costs. There is no precise way of determining the exact cost of equity capital. Finance is in large part a matter of judgment and we should simply face this fact.

(f) Cost of depreciation funds. Funds derived from depreciation may appear to be costless but this is not correct. Assignment of cost to depreciation funds has not received much attention. The current thinking on this problem requires that the cost consideration relating to the retained earnings should also apply to the depreciation funds. The cost of depreciation funds should be equal to their opportunity costs to the equity-holders. When an internal project cannot earn at least the rate that the equity shareholders can obtain from outside investment, money should be distributed as a partial liquidating dividend and the company should start a programme of gradual dissolution.

Composite cost of capital

A company has to employ a combination of creditors' and owners' funds. The composite cost of all capital lies between the least and the most expensive funds. This approach enables the maximisation of corporate profits and the wealth of the equity holders by investing the funds in projects earning in excess of the cost of its capital-mix.

The computation of weighted average cost is the practical application of this approach. The weighted average cost of capital is a simple concept but a number of problems arise in its calculation. Its computation requires two steps: (i) the computation of weights to be assigned to each type of funds, and (ii) the assignment of costs into various sources of capital. Once these values are available, the weighted average cost of capital is obtained by adding up the products of the cost of all types of capital multiplied by their appropriate weights. The following illustration explains the computation of this cost.

Illustration. The balance sheet of the Hypothetical Company and the other related financial data are used to illustrate the measurement of the weighted average cost of capital in Tables 1 and 2. To simplify the computation, it is assumed that the tax rate for the company is 50%. Short-term funds have been ignored.

Balance Sheet of the Hypothetical Company as on.....19.....

(Rs in lakhs)

LIABILITIES		ASSETS	
	Rs		Rs
40,000 equity shares of Rs 100 each	40	Fixed Assets	100
Reserves and surplus	20	Less Depreciation	25
10,000 6 % Cumulative preference shares of Rs 100 each	10	Current Assets	75
20,000 9.5 % Cumulative preference shares of Rs 100 each	20		
1,000 7 % Debentures of Rs 1,000 each	10		
Current liabilities and provisions	50		
	<hr/> 150		<hr/> 150

Other Financial Data

(1) Average market price	
(i) per equity share	Rs 125
(ii) per 6 % Cum. pref. share	Rs 65
(iii) per 9.5 % Cum. pref. share	Rs 102
(iv) per 7 % Debenture	Rs 90
(2) Book value per equity share	Rs 150
(3) Average earnings per equity share	Rs 18
(4) E/P (18/125)	14.4 %

Computation of weights

The weights of each source can be obtained with a reference to their book values or their market values. Tables 1 and 2 show the computation of average cost of capital by using weights based on book values and market values respectively. The choice between the two ways of looking at the capital structure influences a company's cost of capital. As the cost of capital is used as a cut-off rate for investment projects, a selection of the valuation method of the capital structure will determine the range of acceptable projects and thereby the firm's profitability as well as its long-term financial position. Most of the financial analysts prefer to use market value. *First*, it is argued that when an investor considers committing his funds to an enterprise, book values as such are of little significance. What he sees is adequate compensation for the risks assumed and a satisfactory return. The cost of funds obtained in the past

Table 1
Cost of Capital Weighted by Book Values

Source of funds	Book value (Rs in lakhs)	Weight in capital struc- ture	A		B	
			Cost of funds after-tax (%)*		Cost of funds after-tax (%)*	
			Actual Rates	Weigh- ted	Market Yields	Weigh- ted
7 % Debentures	10	.10	3.5	.35	3.9	.39
6 % Pref. shares	10	.10	6.0	.60	9.2	.92
9.5 % Pref. shares	20	.20	9.5	1.90	9.3	1.86
Equity shares	40	.40	14.4	5.76	14.4	5.76
Retained earnings	20	.20	11.5**	2.30	11.5**	2.30
	100	1.00		10.91		11.23

Table 2
Cost of Capital Weighted by Market Values

Source of funds	Market value (Rs in lakhs)	Weight in capital struc- ture	A		B	
			Cost of funds after-tax (%)*		Cost of funds after-tax (%)*	
			Actual Rates	Weigh- ted	Market Yields	Weigh- ted
7 % Debentures	9.0	.105	3.5	.368	3.9	.410
6 % Pref. shares	6.5	.076	6.0	.456	9.2	.699
9.5 % Pref. shares	20.4	.237	9.5	2.251	9.3	2.204
Equity shares Retained earnings }	50.0	.582	14.4	8.381	14.4	8.381
	85.9	1.000		11.456		11.694

*Tax rate for the company assumed at 50 per cent.

**E/P ratio adjusted for an assumed 20 per cent personal income-tax liability of shareholders of the company.

is merely a matter of historical record and may not reflect the company's present ability to raise capital. *Secondly*, book values do not indicate the true economic value of an enterprise. They represent only the sum total of past financing in investment decisions and reflect essentially a number of arbitrary accounting decisions with respect to capitalisation, selection of depreciation methods, valuation of assets and the like. *Thirdly*, accounting records, being based on historical costs, ignore price level changes and, therefore, do not reflect actual current values.

The use of market value involves certain difficulties. The use of market value may involve the danger of introducing a bias into the measurement of the cost of capital. This results in the use of market values in the denominators of both the yield rate to common equity and the debt-equity ratio. Selection of a particular market price poses another difficulty. Conditions may also exist where book values are reasonably representative of market values, particularly in low risk enterprises with high income stability.

Actual rates vs. market yields

There is a difference of opinion on the application of actual (historical) rates as against market yields to the computed weights for the various types of capital. In example A of Tables 1 and 2, fixed-income securities are assigned their actual (historical) costs and the cost of equity capital is differentiated between equity shares and retained earnings. The cost of equity shares is the market yield on the company's shares; and the cost of retained earnings is the market yield adjusted for shareholders' personal tax liability on dividend income. In essence, the method is a hybrid between the historical cost (for fixed-income securities) and the market yield (equity capital). But in example B of Tables 1 and 2, market yields have been used for all types of capital employed. If market values are taken for weights in capital structure, it becomes logical to apply market yields. Use of current rates involves a danger of over-emphasizing short-run influences. But market yields may be hard to obtain unless a company's securities are actively traded. They may have to be estimated in which case the results would not be very accurate.

Determining the type of capital structure

Another problem that arises in calculating average cost is the selection of capital structure from which the weights are obtained. There are several possibilities: current capital structure either before or after the projected new financing; marginal capital structure, *i.e.*, proportion of various types of capital in the total of additional funds to be raised at a certain time; and

optimal capital structure. The current capital structure may be justified when it is identical with the optimal capital structure for the company. Otherwise, in practice, it will result in sub-optimal investment decisions and perpetuate the existing deficiencies arising from an inappropriate capital structure.

The marginal capital structure is unrelated not only to the optimal but also to the current capital structure. Moreover, it assumes that each financing decision is independent of all other capital raising activities. This is an unrealistic view.

The correct capital structure for obtaining weights for the various types of funds, theoretically, is the optimal capital structure of the company. An optimal structure, by properly accounting for the effects of risk, leverage income, control and other relevant factors, will minimise the overall cost of capital to the firm and provide a correct cut-off value for investment decisions. If the firm has determined a long-range optimal capital structure and has plans under which it expects to achieve that desired mixture of total finance, that target set of weights would seem most relevant when estimating capital cost associated with its investments.

In practice, however, an optimal capital structure is seldom achieved. It cannot be precisely determined. As a result, what is really sought is an acceptable capital structure that, although not determined with maximum accuracy, can permit the computation of the cost of capital that is not far from its optimum value. The existing capital structure of the company can also be used unless there are reasons to believe that it deviates substantially from the optimal capital structure.

Composite or Average cost of capital

Investors are usually averse to risk and risk aversion leads them to require higher yields on riskier investments. If a company employs more debt, the required rate of return on its equity goes up. The component cost of debt is also affected by the financial leverage: the higher the leverage ratio, the higher the cost of debt. Further, the cost of debt can be expected to rise at an increasing rate with leverage.

Debt and equity are combined to determine the average, or composite, cost of capital. For example, in considering the most desirable (optimal) debt-equity mix for a company, the cost of debt and equity capital after tax for various levels of financial leverage are estimated as follows :

Debt as percentage of total capital employed	Cost of Debt after tax %	Cost of Equity after tax %
0	4.0	10.0
10	4.0	10.0
20	4.5	10.0
30	5.0	12.0
40	5.5	14.0

The average cost, together with the component cost of debt and equity, is plotted against the debt ratio in Figure 1. Here we see that the composite cost of capital is minimised when its debt ratio is 20 per cent. Thus the optimal capital structure calls for 20 per cent debt and 80 per

Table 3

Composite Cost of Capital for Different Capital Structures

	Percent of Total	Component Costs	Composite Cost
Debt	0	4.0	0
Equity	100	10.0	10.00
			<u>10.00</u>
Debt	10	4.0	.40
Equity	90	10.0	9.00
			<u>9.40</u>
Debt	20	4.5	.90
Equity	80	10.0	8.00
			<u>8.90</u>
Debt	30	5.0	1.50
Equity	70	12.0	8.40
			<u>9.90</u>
Debt	40	5.5	2.20
Equity	60	14.0	8.40
			<u>10.60</u>

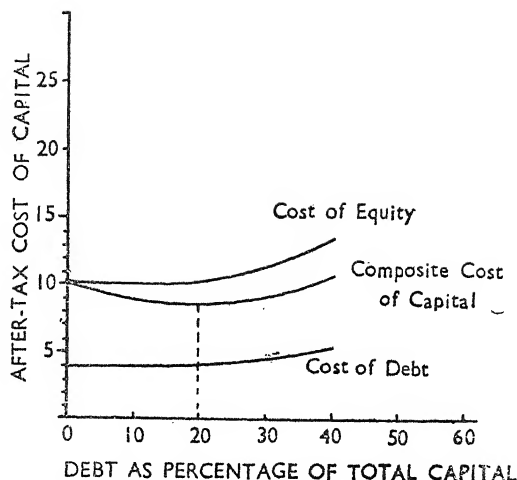


Fig. 1

cent equity in this illustration (Table 3). It is important to note that the average cost of capital curve is relatively flat over a certain range. A reasonable debt-equity mix capital structure will produce a saucer-shaped average cost of capital curve similar to that shown in Figure 1. This gives financial managers a degree of flexibility in planning their financing programmes, permitting them to sell debt one year, equity the next, in order to take advantage of capital market conditions and to avoid high flotation costs associated with small security issues.

Limitation of average cost of capital

The average cost of capital has a limited applicability and is not relevant when a company is considering a significant change in its debt policy, dividend policy involving a readjustment of the proportion of earnings to be retained, growth objectives, and capital structure involving a change in debt-equity mix. There are companies where one or more of these limiting characteristics exist and it may not be possible to use the average costing approach. However, the concept of average cost has found support from a number of financial economists and experts.¹

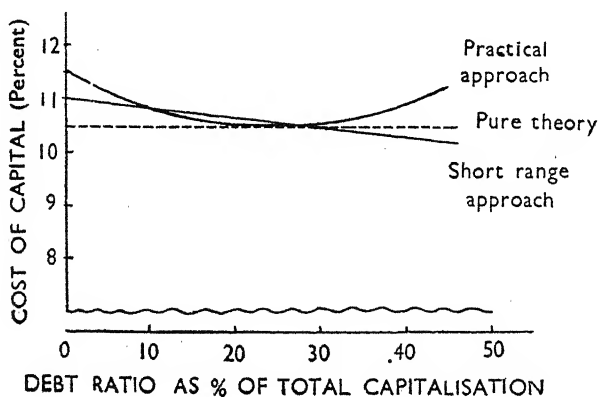
Is the cost of capital dependent on capital structure? It is difficult to give a categorical answer to this question. We can analyse the problem by making a distinction between the short-run and the long-run

¹ cf. Solomon, *The Theory of Financial Management*, Columbia University Press, 1963; Bierman and Smidt, *The Capital Budgeting Decision*, Macmillan, 1966; Childs, *Long-Term Financing*, Prentice Hall, 1961; Weston and Brigham, *Managerial Finance*, Holt Rinehart, Winton, 1966.

costs of capital. In the short-run, a company is limited in additional financing to the funds it can raise from privately negotiated loans on the debt side and to retained earnings on the equity side; and new investments made do not affect the earnings expectations immediately. As the proportion in debt rises in the short-run, so does the cost of debt, and the average cost of capital eventually moves upwards. In the long-run, on the other hand, the effects of financing on the size and stability of earnings are reflected fully in the capitalisation rate, *i.e.*, E/P . As a result, the cost of capital becomes independent of the volume of funds employed, being determined by the market capitalisation rate applicable to earnings of the appropriate risk category.

Cost of capital and management decision

Can cost of capital be affected by managerial decision? There are experts who argue that the cost of capital is independent of the capital structure and depends only upon the risk element of the income streams generated by the assets in which the firm invests. The opponents of this view, on the other hand, feel that the value of a company can be increased by judicious amounts of debt financing. They stress that this is a financing problem and it is necessary to choose an optimal debt-equity ratio for corporate capital structure. The optimal capital structure would be at the point where the substitution of an additional unit of debt for equity by raising the premium for financial risk raises the weighted average cost of debt and equity more than gains from the deductibility of interest and from leverage. This is the optimal capital structure due to financial decision resulting in the lowest cost of capital (see Figure below).



(Figure used by John F. Childs in his article "Profit Goals for Management," *Financial Executive*, February, 1964).

Though it is difficult to predict the company's cost of capital with precision, it can be estimated within the reasonable range of accuracy. We should not consider the cost of capital to be one single given figure. Rather it is a value in a boundary area. When we say that the cost of capital for a given amount of financing is 10 per cent it means that as the rate of return after taxes on capital expenditures approaches the neighbourhood of 10 per cent, our examination of projects should be increasingly rigorous.

The complexity of the problem and the difficulties in the measurement allow the management to delineate a range within which the true cost of capital lies. It is the management's job to obtain an operationally meaningful measure for the cost of capital though financial decisions are frequently influenced by factors other than quantitative data.

APPENDIX : MODIGLIANI-MILLER APPROACH

According to the M-M approach, the average cost of capital to any firm is completely independent of its capital structure and is equal to the capitalisation rate of pure equity stream of its class.¹ This means that the cost of capital is E/P and it does not change with changes in the debt/equity ratio and it is the same for all finance alternatives, assuming no taxes or floatation costs. This approach has a static character. It denies that leverage can influence the price of equity shares. M-M assume that home-made leverage is a perfect substitute for corporate leverage, *i.e.*, they assume that the individual investor will neutralise any change in the leverage on corporate account by an equivalent and balancing change in his leverage on personal accounts. In simple words, it means that the individual investor is assumed to be able to shift easily and costlessly the proportions of equity shares to bonds or highly geared shares to less geared shares in his personal portfolio so as to retain the mix of risk and safety he desires.

The process of home-made leverage, according to M-M explanation, requires that if a company increases the risk of its shareholders by raising the debt-equity ratio, the presumed lower cost of debt finance will be cancelled, as the holders of this company's shares sell them and buy the stocks of equivalent riskless company to restore their prior balance of risk and safety. These sales of stock will depress the price of every stock so that E/P will fall and once again be equal to the temporary lower cost

¹ See, F. Modigliani and M. H. Miller, "The Cost of Capital, Corporation Finance, and the Theory of Investment," *American Economic Review*, June 1958, pp. 268-69.

of debt finance. In short, M-M rely on perfect arbitrage to keep the cost of finance, by all methods, the same. Any efforts by companies to take advantage of one method of finance that is temporarily cheaper than the other are swept away as security holders engage in balancing operations in the securities market.

The ability of the individual holder of corporate securities to engage in costless perfect arbitrage is not accepted by the critics of this approach. Durand has argued that personal leverage is not equivalent to corporate leverage. All investors are subject to limits on the amount of margin commitments and many institutional investors are not permitted to buy on margin at all. Further, attainment of equilibrium is dependent on the risk preferences and aversions of individual investors as well as institutional constraints on their behaviour.

The principal objections to this approach of "equal costs of funds from all sources" is that it requires perfect markets for its execution. In case of lack of mobility of investors' funds between securities, limits to their borrowing, psychological and institutional pressures towards debt securities and legal restrictions on buying bonds or any stock, frictions in the capital market of various kinds, the lower cost of particular types of finance could be seized upon by companies at various times. M-M deny the possibility of even temporary advantage being taken by such conditions by shifts in financing methods on the part of companies. It is as if only the investor and never the company can profit by security shifts.

M-M concentrate on the equilibrium state where no choice of finance methods is relevant because the cost of finance is equal in all directions. It is unrealistic to assume the existence of equilibrium position. Management would grab every opportunity to use a temporarily cheaper means of finance, *i.e.*, to alter its capital structure towards equilibrium. Instead of assuming existence of equilibrium, it is correct to assume that management in a company has to deal with choice of methods of finance on the path towards equilibrium. There is a path towards equilibrium where important decisions are made but M-M are interested in the equilibrium state itself.

This M-M preposition relates to cost of capital in long-term equilibrium. While economic theorists are usually in equilibrium, markets are not, so no amount of evidence can refute the contention that this would happen in equilibrium. If the market is tending towards equilibrium but is always out of it, firms can, in principle, exploit the current state of the market by appropriate choices of debt and equity.

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PROBLEMS ON CALCULATION OF COST OF CAPITAL

PROBLEM 1: *Calculation of Cost of Capital*

A. Details of Capital Structure of TELCO

	(In crores of Rs)	Book value per share on 31.3.76	Market price per share on 31.3.1976
Ordinary share capital (15,74,880 shares of Rs 100 each)	15.75	317	201
Reserves and Surplus	34.16		
9% Redeemable Preference Shares (438,000 shares of Rs 100 each)	4.38		80
7½% Debentures (par value Rs 100)	19.79		76
Long-term loans at 11%	10.89		

B. Equity Share Data

Year	Earnings per share	Dividend per share	E/P	Dividend yield	Book value	Market Price	
	Rs	Rs	%	%	Rs	High	Low
1976	46	15.00	22.55	7.35	317	222	168
1975	38	15.00	18.91	7.54	269	277	192
1974	28	9.30	11.23	3.76	246	266	198
1973	27	15.00	12.68	7.11	227	226	198
1972	27	15.00	12.46	6.84	216	254	206
1971	26	14.50	11.26	6.23	189	273	200

You are required to :

- calculate the weighted average cost of capital for TELCO on 31st March, 1976;
- comment on the relevance of this calculation both for capital structure designing and capital expenditure planning in the Company (by making relevant assumptions).

PROBLEM 2

In considering the most desirable capital structure for a company, the following estimates of the cost of debt and equity capital after-tax have been made at various levels of financial leverage :

Debt as percentage of total capital employed	Cost of Debt	Cost of Equity
0	5.0	12.0
10	5.0	12.0
20	5.0	12.5
30	5.5	13.0
40	6.0	14.0
50	6.5	16.0
60	7.0	20.0

You are required to determine the optimal debt-equity mix for this company after calculating composite cost of capital.

20

Planning the Capital Structure

There is no such thing as the model capital structure for all business undertakings. One way of planning the capital structure is to make it fit into a model compiled from a number of different experiences that may have been drawn from the historical ratios of that firm. This exercise may be checked with the experiences of competitive concerns, of the industry as a whole, and of security analysts, underwriters, investment companies, finance and development corporations. Further, this exercise has to be made within the constraints imposed by the government authorities who have their own ideas about how debt and equity should be blended in the capital structure. Though there is no such thing as the model capital structure for all business enterprises, there are common characteristics that seem to typify certain industries. For instance, public utilities are typically heavily leveraged with debt and/or preference shares as compared to the manufacturing and merchandising concerns. The former are distinguished for their relatively stable income, costs and profits compared with the latter, but the public utilities as against manufacturing and commercial companies are also subjected to more public regulation of their planning policies. Most of this regulation runs in the direction of limiting the risks of capital structure by putting ceilings on the quantity of debt and preference share financing.

Concept of balanced capital structure

A decision of the "proper" balance of security issues—ordinary shares, preference shares and debt debentures—can be made only within the context of the individual company at a specific stage in its history. It is possible by having a reasonable knowledge of its special circumstances, of the attitude and objectives of its owners and management, and of the actual and anticipated condition of the capital market, and of the economic, monetary and fiscal policies of the government.

The extent to which the choice of security types takes the time and attention of the corporate financial executive and the board of directors varies from one company to another and within a single company from time to time. This problem is obviously presented when the company is promoted. Few financial managers ever have the opportunity of designing a new capital structure *de novo*. In most cases they deal with an existing capital structure. The frequency with which this type of decision has to be made subsequently depends on: the rate of growth of the firm, the internal generation of funds; and the total requirements of funds for financing the growth. In some companies, the financial executive may never face a decision of this type during the period of his employment. On the contrary, there are companies which issue new securities, if not every year, an alternate years.

The problem of planning the capital structure, even if presented infrequently, is of crucial importance with long-term financial implications. The need for additional external funds has to be anticipated well in advance in order to weigh carefully all the relevant considerations. It may be emphasised here that by far the largest proportion of funds for new business investment comes from internal sources. However, the choice between internal and external sources is a continuous one and forms an important aspect of long-term financial planning. Corporate management can control the corporate rate of growth and the rate of earnings retention to a certain magnitude and to that extent can adjust the need for external funds. Some managements want to avoid the issue of new securities and by this action they make a deliberate choice between equity capital generated internally and capital provided externally by the sale of shares or debentures.

It is often suggested that a capital structure should be determined which can maximise the long-run value per ordinary share in the market. The assumptions underlying such an approach are that the company operates at a marginal rate of return on its capital expenditures, keeping in view the marginal cost of capital. The funds will be spent as long as the marginal rate of return is above the marginal cost of the supply of funds. Marginal means the most recent application or most recent source of funds. Within this framework of equating the rate of return and the cost of capital, capital structure is sought by using a proportion of debt such that the correct degree of trading on equity leading to financial leverage will cause the highest market value of the ordinary shares. The market value of the equity share is assumed to be established by the earnings per share (EPS) in relation to a proper rate of capitalisation (its reciprocal is P/E ratio). Hence the earnings per share and the rate of capitalisation have to be analysed in order to arrive at the proper market price.

Recently, certain studies have been made to show that the majority of small firms use bank loans or current liabilities for their debt structure and the larger companies in the industrial and manufacturing sector rely generally on retained earnings and depreciation as the chief source of funds. It is, therefore, suggested that the profitability of a firm is not a major item in determining initially the type of capital structure. There appears some difficulty in explaining the capital structure by making reference chiefly to the "cost" of debt or equity financing.¹

There is an additional difficulty as regards the determination of the capitalisation rate which is the result of several factors: the stability of earnings, the growth of earnings, the dividend pay-out, and the psychology of investors at different stages of business cycle. A rapidly growing company may be assigned by the investing class a capitalisation rate of 4% which is a reciprocal of price-earnings ratio of 25. On the contrary, a company with less growth but a regular dividend record may have a price-earnings ratio of 15 or less. This difference in the price-earnings ratios between two companies may vary widely with changing market conditions. Any mathematical or theoretical determination of a correct price for an ordinary share is essentially a long-run proposition. Though most companies plan only for a period of two to five years and visualise the profitability of a capital expenditure project within the same period, an intelligent management selects the new project which is expected to have earnings higher than the accustomed rate of return. In practice, bargaining power for different sources of funds plays a major part in determining capital structures than mere theoretical models.

For an individual company there is a necessity for attaining a proper balance among the debt and equity sources in its capital structure. *It is difficult to determine the proper balance unless we define the points of view from which the use of securities is evaluated.* There are several distinctly different viewpoints—such as those of the creditors, the management, the company, the existing shareholders and the prospective shareholders. The relative advantages and disadvantages of the securities in the capital structure appear differently to individuals with diverse relationships to the company. The position considered best by the debenture holders may not be so if considered from some other point of view. For instance, the sale of a new block of ordinary shares is usually welcomed by debenture holders as they have prior claim to the earnings and residual values of the funds so acquired. On the other hand, the existing ordinary shareholders would be strongly opposed to such an additional equity issue, particularly if the shares were sold below market price to outsiders because the new shares would dilute their participation in future earnings.

¹ For a detailed discussion, see chapter 19, 'Cost of Capital'.

In our analysis, we have adopted the viewpoint of the holders of ordinary shares. Their interests are most intimately connected with the long-term prospects and objectives of the company. They accept, knowingly or otherwise, the basic risks of ownership. Their resources are committed for the protection of others. In contrast, the interests of debenture holders and preference holders are negotiated and limited by contract. Further, the ordinary shareholders, acting as a group, have the power to elect board of directors. It, therefore, seems reasonable that the basic objectives of management should normally be identical with the objectives of the ordinary shareholders and that management in its decisions should reflect this identity of interest. In practice, however, management cannot afford to exclude from consideration the valid interests of others towards whom the company has important responsibilities. These interests may be of creditors, employees, customers, government and the general public. We require a point of view for the consideration of the problems of capital structure planning posed in this chapter and that can logically be of the existing ordinary shareholders of the company. We will, therefore, examine the effects of new financing on the existing shareholders' interests.

The choice of securities is a problem which cannot be solved in general terms or by any simple formula or approach. One has to consider the pros and cons for each alternative. The final choice has to be left to individual judgment in each particular case. But, at the same time, if the analysis of these considerations is carried out in an objective manner, the resulting capital structure is likely, within limits, to fit into a general pattern suited to the character of the industry in which the company operates.

The most important motivating factor for shareholders to make their investment decision is the promise of return. This return may be received in two forms : directly, through cash dividends paid out by the company; and indirectly, through increase in the market value of their equity investment. Dividend payments are mostly influenced by the earnings level of the company. Earnings and dividend prospects, in turn, constitute a major consideration in determining the market price of ordinary shares.

In the following sections of this chapter, an attempt has been made to discuss the various techniques for analysing the income, risk, control and other implications resulting from raising new capital. One should, however, keep the fact in view that there are more tools of analysis discussed here than would ever prove useful in evaluating alternative methods of financing in any given situation. Hence, it is necessary to know what each of these tools measures, and how and when these tools might prove helpful. While the technique aspect of the calculations can be mastered easily by due practice, there may be difficulty in the interpretative analysis

of the finalised calculations even for well-trained and experienced financial executives. We are concerned here with the analytical techniques and skills that may be useful to financial executives of all industries, and the objects for special consideration are the shareholders' satisfaction (in terms of earnings per share, dividends per share, and market price of equity shares), solvency risks of the company, control and other considerations necessary to be kept in view at the time of planning the corporate capital structure.

New financing and earnings per share (EPS)

For analysing the effect of new financing decisions on the interest of the ordinary shareholders it is relevant to calculate earnings per share (EPS). EPS is simply a measure of profits reported available for ordinary shareholders during a period divided by the total number of ordinary shares outstanding at the end of that period.

Illustration. The Evergreen Chemical Company has an outstanding debenture issue of Rs 120 lakhs with 7.5% rate of interest and an annual sinking fund obligation of Rs 6 lakhs over a period of 20 years; preference shares of Rs 30 lakhs with a 10% dividend requirement but with no sink-

Table 1
Evergreen Chemical Co.

(in lakhs of Rs)

<i>Capital Structure:</i>			
7.5 % Debentures	..	..	120
10 % Preference Shares	..	..	30
30 lakhs Ordinary Shares of Rs 10 each	..		300
<i>Income Statement:</i>			
Sales Volume	..	..	1,500
Operating Expenses	..	..	1,350
Earning Before Interest and Taxes (EBIT)			150
Less Interest (7.5 % on Rs 120 lakhs)	..		9
Profit Before Taxes (PBT)			141
Taxes (55 %)	..	..	78
Profit After Taxes (PAT)			63
Less Preference Dividend (10 % on Rs 30 lakhs)			3
Profits available for Ordinary Shares			60
Number of Ordinary Shares	..		30 lakhs
Earnings Per Share (EPS)	..		$\frac{60}{30} = \text{Rs } 2 \text{ per share}$

ing fund obligation; and ordinary shares of Rs 300 lakhs divided into 30 lakh ordinary shares of Rs 10 each. The Company's earnings are currently taxed @ 55%. This Company is assumed to have a sales volume of Rs 1,500 lakhs and operating cost (cost of goods sold, administrative and selling expenses, etc.) before consideration of financial charges and taxes of Rs 1,350 lakhs. The remaining Rs 150 lakhs are referred to as earnings before interest and taxes (EBIT) which serves as a good starting point for calculating EPS. Given this information, EPS may be calculated as in Table 1.

It is assumed that the Evergreen Chemical Company has got a plan to raise Rs 50 lakhs in order to finance its expansion programme. These funds may be financed by choosing one of the three following alternative sources: (1) A Rs 50 lakh issue (net proceeds to the company) of 8% Debentures to be retired through equal annual sinking fund payments of Rs 2.5 lakhs over their 20-year life; (2) A Rs 50 lakhs issue of 10% Preference Shares (expenses of making the issue ignored); (3) A Rs 50 lakh issue of Ordinary Shares issued at Rs 12 per share as against its market price of Rs 15 (underwriting fees and other issue expenses ignored). The company will have to issue roughly 4.16 lakh new ordinary shares to raise Rs 50 lakhs at the net issue price of Rs 12.

Table 2

Projected EBIT and EPS before Investment of Rs 50 Lakhs

(Rs in lakhs except for EPS)

			Debt. Plan	Preference Shares Plan	Ordinary Shares Plan
			Rs	Rs	Rs
EBIT	..	..	150	150	150
Old Interest	..	..	9	9	9
New Interest	..	..	4	..	..
PBT	..	..	137	141	141
Taxes (55%)	..	..	75	78	78
PAT	..	..	62	63	63
Old Pref. Dividend	..	..	3	3	3
New Pref. Dividend	..	..	..	5	..
Profits for Ordinary Shares			59	55	60
Number of Ordinary Shares			30 lakhs	30 lakhs	34.16 lakhs
EPS	..	..	1.97	1.83	1.75
Dilution as against initial EPS					
of Rs 2	..	..	.03	.17	.25

The immediate effect of new financing on earnings per share can be noted from Table 2.

In Table 2, under debt alternative not only existing interest of Rs 9 lakhs but also new interest of Rs 4 lakhs (8% of Rs 50 lakhs) has been shown as an additional deduction prior to deducting the income-tax. Similarly, under preference share alternative new preference dividends amounting to Rs 5 lakhs (10% of Rs 50 lakhs) are deducted from profits after taxes before calculating earnings per share. No such deductions are necessary to be made under the ordinary share alternative since no additional prior charges to earnings are created as a result of the additional issue of ordinary shares. However, the number of outstanding shares has increased to 34.16 lakhs as against the earlier figure of 30 lakhs, thereby affecting the EPS calculation.

The calculations in Table 2 assume that Rs 50 lakhs of additional capital will not bring an increase in the EBIT level. The immediate dilution of earnings per share caused by the issues of new capital comes to Rs 0.03, 0.17 and 0.25 per share under debenture, preference share and ordinary share alternatives, respectively.

Table 3

*Projected EBIT and EPS after Investment of
Rs 50 Lakhs and Assumed Incremental EBIT*

(Rs in lakhs except for EPS)

	Debt. Plan	Preference Shares Plan	Ordinary Shares Plan
	Rs	Rs	Rs
EBIT	165	165	165
Old Interest ..	9	9	9
New Interest ..	4	..	..
PBT	152	156	156
Taxes (55%) ..	84	86	86
PAT	68	70	70
Old Pref. Dividend ..	3	3	3
New Pref. Dividend ..	..	5	..
Profits for Ordinary Shares	65	62	67
Number of Ordinary Shares	30 lakhs	30 lakhs	34.16 lakhs
EPS	2.16	2.06	1.96
Change in EPS as against initial EPS of Rs 2 ..	+.16	+.06	-.04

However, with an expansion programme to the extent of Rs 50 lakhs the rise in EBIT level can legitimately be expected. Let us assume that the EBIT goes up from Rs 150 lakhs to Rs 165 lakhs, i.e., additional EBIT of Rs 15 lakhs on the new investment of Rs 50 lakhs. The effects of this incremental increase in EBIT on earnings per share can be examined in Table 3.

It can be noted from Table 3 that two of the three alternatives, i.e., debt and preference shares, bring an increase in EPS as compared to the initial Rs 2 per share. Under the ordinary share alternative there is a net decrease in EPS of Re 0.04 and this figure is the measure of net dilution of earning per share under the given EBIT assumptions. The projected EPS increase of Re 0.16 under the debt alternative and Re 0.06 under the preference share alternative are referred to as strengthening in earnings per share to signify the fact that there was no net dilution in EPS under these methods of financing.

Explicit cost of new capital. A number of problems are involved in measuring the cost of various types of capital. We have already discussed this issue in detail in Chapter 19 dealing with "Cost of Capital". Here we are concerned with the problem of dilution in EPS which represents the explicit cost of raising various types of capital from the ordinary shareholders' point of view. One method to assess the explicit cost of various types of capital is to determine the rate of return at which new funds raised by the issue of various types of securities can be employed to offset the initial dilution. Table 4 gives a procedure for estimating the rate

Table 4

		Debt. Plan	Preference Shares Plan	Ordinary Shares Plan
Initial EPS	..	Rs 2.00	Rs 2.00	Rs 2.00
Number of Ordinary Shares outstanding	..	30 lakhs	30 lakhs	34.16 lakhs
Profits for Ordinary Shares required to preserve EPS..		Rs 60 lakhs	60 lakhs	68.32 lakhs
Less Projected Profits for Ordinary Shares before investment (Table 2)	..	Rs 59 lakhs	55 lakhs	60.00 lakh
Incremental Profits required on new investment	..	Rs 1 lakh	5 lakhs	8.32 lakhs
Amount of new investment	..	50 lakhs	50 lakhs	50 lakhs
Rate of return (after taxes) to offset initial dilution	..	2 %	10 %	16.6 %

of return at which new capital should be employed in our Hypothetical Company to take care of the initial dilution of the EPS caused under the three financing alternatives.

The explicit cost of new capital under debt alternative comes out at 2% as against 10% under preference shares and 16.6% under ordinary shares. These cost calculations are based on the assumption of net proceeds of Rs 50 lakhs to the company ignoring issue and underwriting expenses. In practice the issue expenses and underwriting fees would affect the explicit cost of capital largely by reducing the amount of net proceeds.

The ordinary share alternative of financing has a higher explicit cost as compared to other two alternatives of financing. It is necessary here to emphasise that the above explicit cost of capital does not usually provide a true measure from the shareholders' point of view of the cost of using various forms of capital. We have used an over-simplified definition of dilution in terms of EPS alone to describe capital cost. A fuller definition of dilution is necessary to examine its effects on the shareholders' overall position.

Zero EPS and EBIT level. It is useful to analyse the level of EBIT under different financing alternatives by assuming EPS as zero. This calculation involves working backwards as illustrated in Table 5.

Table 5

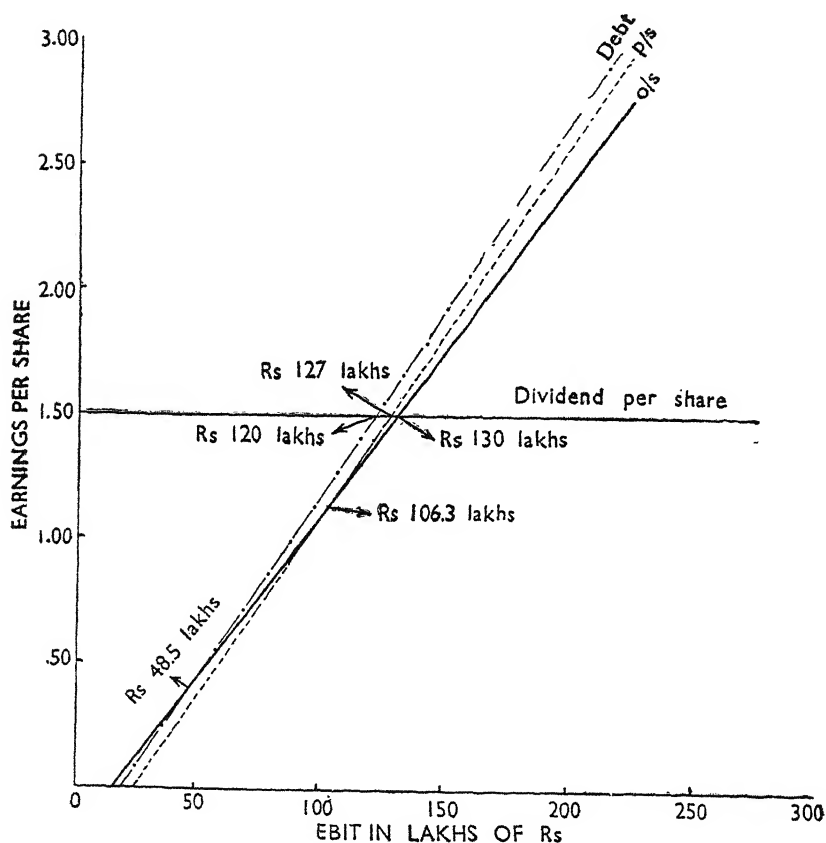
(in lakhs of Rs)

			Debt. Plan	Preference Shares Plan	Ordinary Shares Plan
EPS	..	..	0	0	0
Profit to Ordinary Shares			0	0	0
Preference Dividend	..		3.0	8.0	3.0
PAT	..	..	3.0	8.0	3.0
Taxes (55 %)		..	3.6	9.7	3.6
PBT $\frac{(PAT)}{(1-T)}$	..	..	6.6	17.7	6.6
Interest	..	..	13.0	9.0	9.0
EBIT	..	..	19.6	26.7	15.6

The EBIT Chart or Range-of-Earnings Chart. A financial executive, faced with the problem of selecting alternative, will be interested to make calculation of potential EPS at various probable EBIT levels. Tabular calculation of EPS is usually found tedious as against graphical

method. Results can be shown on graph by calculating EPS at two different EBIT levels (choice of these levels is arbitrary) under a certain financing alternative. Figure 1 provides a graphical presentation of linear relationship between EPS and EBIT under various alternatives. It is called EBIT chart.

Figure 1
Break-even Levels of EBIT under Alternative Plans



EBIT chart forms a useful device for the financial executive in calculating EPS at any EBIT level. He may like to examine the EPS results at the probable EBIT levels. He may also wish to analyse the EPS results at the EBIT extremes (the best and the worst probable EBIT results). This analysis is possible by drawing vertical lines on the EBIT chart through the critical EBIT points. Choice of appropriate EBIT level is a matter of judgment requiring careful estimate of future earning conditions.

A simple mathematical relationship exists between EBIT and EPS for each one of the financing alternatives. Drawing of lines on the EBIT chart is very easy, particularly after knowing the starting point in terms of level of EBIT when EPS is assumed to be zero under the three financing alternatives as given in Table 5. For example, EBIT for zero EPS under debt alternative is Rs 19.6 lakhs, under preference share alternative Rs 26.7 lakhs and under ordinary share alternative Rs 15.6 lakhs. These points can be located on the EBIT horizontal line. The other points for the respective lines can be plotted on the graph after making calculations of EPS as shown in Table 3, where EPS under debt alternative is 2.16, under preference share alternative 2.06 and under ordinary share alternative 1.96. In each case there is a simple straight line relationship. For this reason, the line can be drawn merely by determining any two points on the line.

The intersection of ordinary share line with debt line or preference share line gives the break-even points. At these points, the EPS is the same for two alternatives. For instance, ordinary share line and debt line intersect at the EBIT level of Rs 48.5 lakhs while the ordinary share line and the preference share line intersect at the level of EBIT of Rs 106.3 lakhs. These points provide good guidelines in planning the capital structure. Taking into consideration the intersection of ordinary share and debt lines at the point of 48.5 lakhs, it may be noted that for levels of earnings below this point, the ordinary share alternative has a more favourable income effect; and for levels of earnings above this point, the debt alternative has a more favourable income effect. Similar is the position in respect of intersection of ordinary share line with preference share line at the level of EBIT of Rs 106.3 lakhs. The preference share alternative will have a favourable effect on EPS above this level of EBIT and ordinary share alternative will be having favourable effect on EPS if the EBIT falls below this level of Rs 106.3 lakhs.

EBIT level for EPS equivalency points : algebraic calculation.

The EBIT level for break-even among alternative financing plans can also be calculated algebraically, as shown below :

(i) Break-even EBIT Level for Ordinary Share and Debt Alternatives :

$$\frac{(X - I_1)(1 - T) - PD}{S_2} = \frac{(X - I_2)(1 - T) - PD}{S_1}$$

where: X = Break-even level of EBIT

I_1 = Amount of old interest

I_2 = Amount of old and new interest

T = Tax Rate (assumed at 55%)

PD = Dividend on outstanding preference shares

S_1 = Number of old ordinary shares

S_2 = Number of old and new ordinary shares.

Substituting values from our example, we have :

$$\frac{(X-9)(1-.55)-3}{34.16} = \frac{(X-13)(1-.55)-3}{30}$$

$$13.50 X - 211.50 = 15.372 X - 302.316$$

$$X = \text{Rs } 48.5 \text{ lakhs.}$$

(ii) Break-even EBIT level for Ordinary Share and Preference Share Alternatives :

$$\frac{(X-I)(1-T)-PD_1}{S_2} = \frac{(X-I)(1-T)-PD_2}{S_1}$$

where : X = Break-even level of EBIT
 I = Amount of interest
 T = Tax Rate (assumed at 55%)
 PD_1 = Dividend on old preference shares
 PD_2 = Number of old and new preference shares
 S_1 = Number of old ordinary shares
 S_2 = Number of old and new ordinary shares.

By substituting values, we have :

$$\frac{(X-9)(.45)-3}{34.16} = \frac{(X-9)(.45)-8}{30}$$

$$13.50 X - 211.50 = 15.372 X - 411.628$$

$$X = \text{Rs } 106.3 \text{ lakhs.}$$

The algebraic calculation, it will be seen, gives more exact figures. But one should be extra cautious in interpreting the results of the EPS equivalency points. These equivalency points, it may be repeated, indicate only the level of EBIT *below* which ordinary share alternative has a favourable effect on EPS and *beyond* which the debt or preference share alternatives (as the case may be) have a better effect on EPS. Debt and preference share alternatives have no equivalency point because their EPS lines on the EBIT chart are parallel. Considerable skill is required to balance the findings of these equivalency analyses judiciously with other considerations.

EPS volatility. EPS volatility, as explained by Professor Vandell,¹ indicates the amplitude of cyclical EPS fluctuations around the expected EPS mean. A number of factors like fluctuations of sales volume, selling price, variable cost, fixed costs and operating leverage affect it. The firms with the most volatile sales patterns have the most volatile EPS. In app-

¹"Effects of New Financing on Common Stockholders' Income," *Techniques of Financial Analysis*, (Ed.) Helfert, Homewood, Ill.: Richard D. Irwin, 1963, p. 122.

raising the effects of future sales fluctuations on volatility due attention is required for examining the implications of the factors causing sales fluctuations: changing sales volume, variation in selling price and change in sales-mix of products. These factors have effect not only on operating leverage but also on EPS volatility. In short, EPS volatility is a function of the afore-mentioned factors acting in combination. However, an increase in financial leverage does not necessarily imply an increase in EPS volatility.

Figure 2

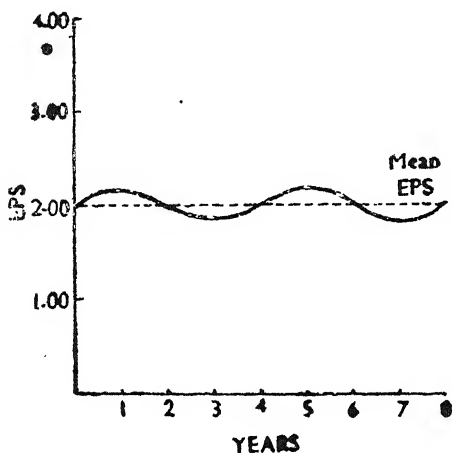


Figure 3

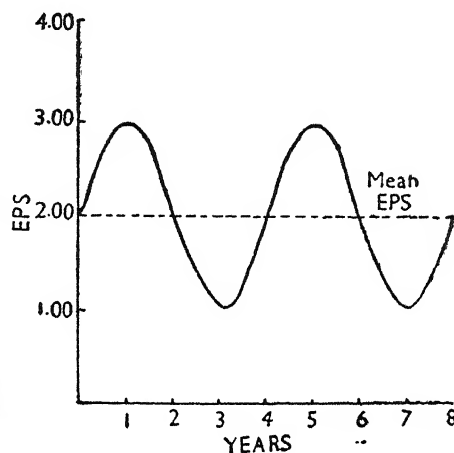


Figure 4

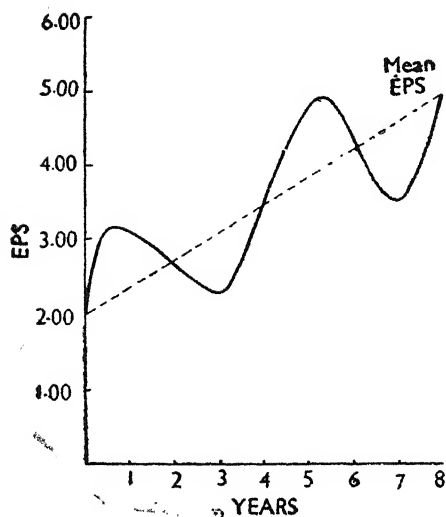
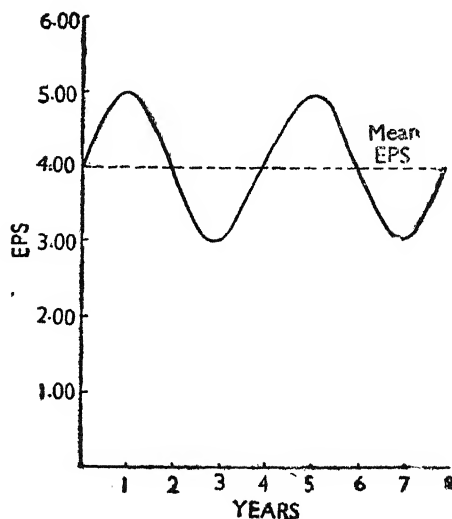


Figure 5



EPS volatility can take various forms as shown in Figures 2-5. The relationship between the rupee size of the amplitude and the mean EPS level is worth noting. This point can be appreciated by studying the volatility of EPS shown in Figures 2 and 3. While the mean EPS is same in Figures 2 and 3, the amplitude of cyclical fluctuations is higher in Figure 3 as compared to Figure 2. Volatility of EPS as shown in Figure 4 is just the same in Figure 3 but the mean EPS at the level of Rs 4 is higher than Rs 2 in Figure 3.

Secular trends also have an important effect on EPS volatility as may be seen in Figure 5. It may be noted that this company has the same EPS cyclical amplitude in rupee as shown in Figure 3 but the strong secular growth trend tends to minimise the significance of volatility. If EPS has got a secular decline, one can understand the magnified adverse effect on EPS volatility.

The two inter-related factors, having an important effect on EPS volatility, are: cyclical volatility of sales volume and operating leverage. The companies with the most volatile sales patterns are likely to have the most volatile EPS. Hence, in evaluating the effects of future sales fluctuations on EPS, it is important to realise the implications of the factors causing sales fluctuations like change in sales volume, change in selling price and change in the sales mix of products.

Analysing the risks of debt financing

A number of factors are responsible for the preference of inclusion of a debt in the corporate capital structure. *First*, interest on debt is deducted as a business expense whereas dividends on preference shares or equity shares are not given that treatment. *Secondly*, debentures often present an easier underwriting job as institutional investors have a larger absorption capacity for debentures than for shares. Insurance companies, investment trusts and other financial companies prefer to make investment in bonds and debentures. *Thirdly*, lower cost is involved in the issue and floatation of debentures. *Fourthly*, inclusion of debt in the corporate capital structure introduces the element of leverage which is the ability of a business to benefit by obtaining low cost borrowed capital and using it to obtain a higher return for its owners. Income earned on the debt capital above its cost accrues and enhances the owners' return. *Finally*, there are other financial and psychological factors which tend to favour debt. For instance, no danger is involved to management control in the issue of debt. Debentures are also issued to consolidate and fund short-term indebtedness. Debt may also be found advantageous in case of rising interest rates since there is an interest cost fixed at the time of issue. Any subsequent increase in the rate of interest would not affect the cost of debt

capital earlier borrowed. Inclusion of debt in the capital structure also results in improving certain financial ratios. These are some, but by no means all, reasons which lead many financial managers to prefer long-term debt.

But the financial executive has to pay adequate attention to the risks of debt financing. In view of the low explicit cost of debt financing, one is likely to minimise risks of debt financing. Debt alternative as against equity alternative proves beneficial so far as income effect is concerned after the EPS equivalency point on the EBIT chart. But this alternative should be considered keeping in mind the risks involved in its adoption. Not only a method of measuring incremental risk is required but also a decision is necessary as regards how much risk is "too much". The risks are associated with debt financing on account of the contractual period payments (interest and repayment of debt) that have to be made to the debenture holders or lending institutions regardless of the company's earnings and financial circumstances. As the interest on debt has to be provided as a deduction from current earnings, it is necessary to make calculations of the coverage of interest by earnings. Thus emphasis shifts from measuring the cost of debt to the size of compulsory payments. The periodic payment of interest and repayment of principal through a sinking fund provision may pose a threat to corporate solvency. Failure to meet these payments constitutes a default of the contract. Thus, when measuring risk one has to take into account the total burden of debt represented by interest and sinking fund payments.

Uncommitted earnings per share. The calculation of uncommitted earnings per share (UEPS) provides a good measure for determining the adequacy of earnings to meet debt obligations. The EBIT chart can be used to find the level of EBIT for UEPS equivalency point among the ordinary share and debt financing alternatives (Figure 6). It would be seen that UEPS equivalency point in one Hypothetical Company comes out at the level of EBIT of Rs 203.6 lakhs. The minimum levels of EBIT under debt and ordinary share alternatives to cover interest, preference

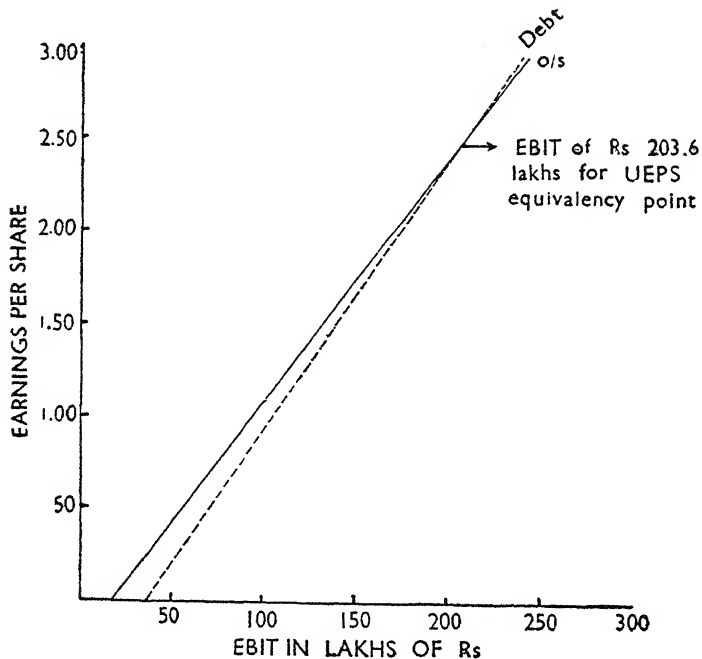
(In lakhs of Rs)

	Debt.	Ordinary Shares
EBIT to cover Interest and Preference		
Dividend.. ..	19.6	15.6
Sinking Fund	8.5	..
Tax factor related to Sinking Fund (55%)	10.5	..
Minimum level of EBIT	Rs 38.6	Rs 15.6

dividend and sinking fund with tax adjustment can be used from the following statement. (These minimum levels of EBIT can be used to provide the starting point for drawing the UEPS line on the EBIT chart.)

Figure 6

Chart Showing UEPS Equivalency Point



The other point for drawing UEPS lines on the EBIT chart can be plotted on graph by finding UEPS at the EBIT level of Rs 165 lakhs under debt and equity alternatives (Table 6).

Table 6

*Projected EBIT and UEPS after Investment of
Rs 50 Lakhs in Expansion Programme*

(in lakhs of Rs)

			Debt. Plan	Preference Shares Plan	Ordinary Shares Plan
EBIT	..	..	165	165	165
<i>Less</i> Old Interest	..	..	9	9	9
New Interest	..	..	4	..	..
PBT	..	..	152	156	156
<i>Less</i> Taxes (55 %)	..	..	84	86	86
PAT	..	..	68	70	70
<i>Less</i> Old Pref. Dividend	..	..	3	3	3
New Pref. Dividend	..	..	..	5	..
Disposable Profits	..	..	65	62	67
Sinking Fund Obligation	..	..	8.5	6	6
Profits for Ordinary Shares	..	..	56.5	56	61
Number of Ordinary Shares (in lakhs)	..	..	30.00	30.00	34.16
UEPS (Uncommitted Earnings per Share)	..	..	Rs 1.88	Rs 1.87	Rs 1.78

*Break-even EBIT level for ordinary share and debt
(with sinking fund) alternative*

We can calculate the break-even level of EBIT for debt (with sinking fund) and equity alternatives by algebraic method as shown below.

$$\frac{(X - I_1)(1 - T) - PD}{S_2} = \frac{(X - I_2)(1 - T) - PD - SF}{S_1}$$

where :
 X=Break-even level of EBIT
 I₁=Amount of old interest
 I₂=Amount of old and new interest
 T=Tax Rate (55% assumed)
 PD=Dividend on Preference Shares outstanding
 SF=Sinking Fund obligation for debt
 S₁=Number of old ordinary shares
 S₂=Number of old and new ordinary shares

By substituting values, we have:

$$\frac{(X-9)(.45)-3}{34.16} = \frac{(X-13)(.45)-3-8.5}{30}$$

$$13.50X - 211.50 = 15.372X - 592.676$$

$$X = \text{Rs } 203.6 \text{ lakhs.}$$

Leverage. The concept of leverage helps in examining the risks of debt financing. The leverage can be classified under two heads: operating leverage and financial leverage. Operating leverage in a firm is a function of three factors—the rupee amount of fixed cost, the variable contribution margin, and the volume of sales. We have already discussed these factors in Chapter 6 dealing with cost-volume-profit analysis. Here we are more concerned to examine the combined effect of operating and financial leverage in a company making decision on debt-equity mix.

The formula to measure the effect of operating leverage is:

$$L = \frac{N(P-V)}{N(P-V) - F}$$

where N is number of units sold; P is selling price per unit; V is variable cost per unit; F is fixed cost; and L is operating leverage.

Let us see the working of operating leverage in our hypothetical company. The Evergreen Chemical Company is assumed to have a sales volume of 1,500 lakh units at a selling price of Re 1; its variable cost per unit is Re 0.60; and fixed costs Rs 4,50,000. These facts are tabulated in Table 7. Using this information from our hypothetical company we get:

$$\frac{1500(1-.60)}{1500(1-.60) - 450} = \frac{600}{150} = 4$$

The operating leverage indicates the percentage change in EBIT for a certain percentage in sales. The operating leverage would change with every variation in selling price, variable cost, fixed cost and volume of sales. A favourable operating leverage depends not only upon the control of fixed and variable cost but also upon value and volume of sales.

Financial leverage. Financial leverage indicates the effect on earnings under conditions where the capitalisation is not altered, created by the use of fixed charge securities in the capitalisation of a company. It can be measured by the ratio of (i) the rate of growth in earnings available to the ordinary shareholders to (ii) the rate of growth of EBIT. This can be illustrated by the formula:

$$\frac{\text{EBIT}}{\text{EBIT} - \text{Interest}}$$

The financial leverage in our hypothetical company (Table 7) can be analysed, by using the following formula :

$$\frac{\text{EBIT}}{\text{EBIT} - \text{Interest}} = \frac{150}{150 - 50} = 1.5$$

This formula requires modification to consider implications of financial leverage caused by preference shares where an adjustment for tax factor is also essential.

Table 7

(In lakhs of Rs)

	Original	After an increase of 10% in sales
Sales (1500 lakh units at Re 1 selling price)	1,500	1,650
Variable Cost (Re 0.60 per unit)	900	990
Fixed Costs	450	450
EBIT	150	210
Interest (assumed)	50	50
PBT	100	160
Taxes (55%)	55	88
PAT	45	72

$$\text{Operating Leverage : } \frac{\text{Percentage increase in EBIT}}{\text{Percentage increase in Sales}} = \frac{40}{10} = 4x$$

or

$$\text{Operating Leverage : } \frac{\text{Contribution}}{\text{Operating Profit (EBIT)}} = \frac{600}{150} = 4x$$

$$\text{Financial Leverage : } \frac{\text{EBIT}}{\text{EBIT} - \text{Interest}} = \frac{150}{100} = 1.5x$$

or

$$\text{Financial Leverage : } \frac{\text{Operating Profit}}{\text{Profit before Tax}} = \frac{150}{100} = 1.5x$$

Combined effect of Operating and Financial Leverage :

$$4 \times 1.5 = 6 \text{ times.}$$

An increase in sales of 10% will cause an increase in EBIT of 4 times or 40% and an increase in PBT of 6 times or 60%.

By combining the operating leverage and the financial leverage we get $4 \times 1.5 = 6$. It means that an increase in sales of 10% brings an increase in EBIT of 40% and an increase in profits (available for shareholders) of 60% (Table 7). Similarly, a decrease of 10% in sales will mean a fall in EBIT of 40% and a decline in PBT of 60%.

From the shareholders' point of view the value of leverage depends upon whether it is helping or hurting them. So long as shareholders find rising sales and EBIT levels, leverage is advantageous because it tends to maximise the related increase in EPS, DPS, and possible market prices. On the other hand, when sales and EBIT levels are falling, leverage tends to be disadvantageous since it maximises the related decline in EPS.

Leverage is a double-edged sword. It has got tremendous acceleration or deceleration effect on EBIT as well as EPS. It may prove a blessing for companies which are suitably placed for making an optimum use of financial resources in terms of growing earnings. However, it may prove a curse for companies with high debt financing but low and uncertain cash inflows to meet the debt obligations.

Other approaches for analysing debt risk. After discussing the tools of UEPS analysis and leverage analysis, other approaches for analysing the risks of debt financing may also be considered. Some managements believe that any debt is too much debt and thereby exclude long-term loans entirely from the capital structure. Some follow the practice of letting the creditors decide. Utilisation of the debt capacity in their companies is determined by the financial institutions like commercial banks, financial corporations, insurance companies, etc. Often, companies wish to stay within the boundaries laid down by the lending institutions. The debt policy in some companies is determined in the light of the experience of their competitors' debt policies. Thus the borrowing company passes the responsibility for deciding an appropriate risk level for debt financing to someone else.

There are companies which evolve debt capacity rule by laying down the limits for debt as a percentage of capitalisation. Some follow the earnings coverage standard which sets a minimum required ratio between net earnings available for annual debt servicing and the total amount of debt servicing. Such simple guides to debt usage cannot be condemned outrightly. They are found appropriate by external financial analysts who may not have the requisite incentive, time and the information to do anything better. But from the point of view of the corporate financial executive these approaches are deficient as an adequate guide to long-

term capital structure planning. Recently, serious thought has been given to this problem and the following approach of projected cash flow analysis is found meaningful by the financial executives for planning the capital structure.

Projected cash flow analysis and debt capacity. As debts are serviced by cash payments, it is cash flow and cash result that determine whether a problem of servicing exists. If the variations in cash inflow are not matched by compensating changes in outflows, a serious financial problem would be created for management. The more the management adds to the fixed element of outflows, the bigger the threat from unexpected and prolonged declines in inflow. Hence the correct way of analysing the risks of debt financing requires due consideration of all those factors that significantly influence the behaviour of cash inflows and outflows over a period of time. This information can be made available to the internal analysts and should, therefore, be used to determine the capital structure policy.

The precise form of cash flow analysis does vary considerably from rough approximations to very refined models. Computer model of cash flows has been developed to serve many purposes in corporate financial analysis including the consideration of debt policy. In the more refined models results can be had over a wide range of recession conditions and can be used to develop a measure of probability of cash insolvency or inadequacy for any given level of debt.

Management may make a decision on debt-equity balance more objectively with the estimates of the risk magnitudes before it. But an objective measure of risk magnitude does not provide the final answers. There is also a subjective dimension of this decision, i.e., willingness of the management to take risk. Hence generalised debt capacity rules should be used with caution. Moreover, there are certain restraints on carrying the risk analysis. These restraints relate to the availability of the data, analytical competence to handle the data, the cost of analysis in terms of time and money and the attitude of management in substituting an elaborate analysis for rules of thumb that might have proved useful in the past.

Limitations on debt capacity. What is the prospective gain in EPS resulting from debt? How far to go down the debt path? These are crucial questions. The favourable effect of debt on EPS has to be weighed against the resultant increase in risk. It is easy to suggest that debt capacity should be used to such an extent which can maximise the market price of the ordinary share. The market price is sensitive to both earnings prospect and the anticipated certainty or uncertainty of those earnings. If debt proportions are increased and the beneficial effects of

raising EPS are outweighed by the deterioration of the price-earnings ratio, one will have to check the debt-equity mix. Various bench-marks and tests have been developed. The following three approaches would be found useful in making decision in this crucial area : (1) the capitalisation standard; (2) the earnings coverage standard; and (3) the cash adequacy standard.

Capitalisation standard. In the capitalisation standard (widely used by financial managers), debt capacity is expressed in terms of the balance-sheet relationship between long-term debt and the total of all long-term resources, i.e., total capitalisation. It is widely held that debt should not exceed 25 to 30% of total capitalisation of industrial companies. A good number of Indian companies at present have debt to equity ratio of 2:1. Under the Control of Capital Issues Act a company can even have a higher ratio in certain types of industries.

Earnings coverage standard. Often the limits of debt are expressed in terms of income statement data, i.e., the earnings coverage ratio. This ratio is the relationship of the net income available for debt servicing to the total amount of annual interest plus sinking fund obligations. By relating funds requirements for long-term debt to net earnings available for servicing the debt, this approach throws light on the question of whether earnings will be adequate under varying conditions to meet debt obligations. No new long-term debt obligation will be assumed unless the net income available for debt servicing is in excess of some multiple of debt service requirements, such as 3:1 or 4:1 so that there is a margin of safety to allow for a decline of earnings. The greater the fluctuations in earnings, the higher the ratio should be to provide an adequate cushion to meet debt service under adverse circumstances.

Cash adequacy standard. The cash adequacy standard has been developed by Professor Donaldson.¹ His approach is based on the concept that debt limits should be determined by a measure of the risks of the firm's running out of cash, particularly in recession periods, considered in the light of the management's willingness to bear risk in the interest of future profitability. This approach requires an analysis of primary factors which cause variations in cash flow and a measure of the limits of their behaviour in recession periods. An estimate of the maximum and most probable adverse limits of recession cash flows and balances has to be prepared. These figures, therefore, would provide an approximate measure of the magnitude of risk associated with debt financing. It is then left to the financial manager to judge whether the risks should be

¹ See, Donaldson, Gordon, *Corporate Debt Capacity*, Boston: Harvard Business School, 1961.

incurred and, if so, to what extent. In short, this analysis is based on the behaviour of cash flows during recession periods in order to determine the company's capacity to bear incremental fixed cash outflow either for debt or for other purposes. The recession cash flow analysis provides tests for *cash solvency* and for *cash adequacy*. The former measures the risk of running out of cash for absolute insolvency. The latter recognises that there are other essential minimum requirements such as a given level of dividends, basic research and developmental expenses which could be sacrificed to avoid insolvency but which management regards as necessary and should, therefore, fall within the range of adequate cash availability even in recession.

Viewed in this way, the debt capacity becomes a part of a broader problem of determining the capacity of a business to assume additional fixed cash outflows for any one of a variety of purposes and it is determined in the process of assigning priorities to various competing uses of funds.

Dividend considerations

At the time of planning the capital structure, analysis of potential earnings per share, as we have already seen, plays a significant part. This analysis should, however, be supplemented by examining the implications of various financing alternatives on future dividends per share (DPS). For providing satisfaction to ordinary shareholders a company has to adopt a fair relationship between EPS and DPS. But it does not mean that management will pay out a fixed percentage of EPS every year or over a period of years since many factors have to be kept in view while determining dividend policy. Considerable caution is required in interpreting the significance of fixed dividend payout policies.

EBIT level for DPS-EPS break-even point. For finding out the EBIT levels to maintain a certain figure of DPS under alternative financing plans one can make use of the EBIT chart. For instance, if our hypothetical company wants to pay Rs 1.50 as dividend per share we can draw a line at this point of EPS on vertical axis. This line would run horizontal to the EBIT axis and would intersect the three EPS alternative financing lines. The points where this DPS horizontal line intersects each of the EPS lines for financing alternatives are called the DPS-EPS break-even points. These break-even points (Fig. 1) are at the levels of EBIT of Rs 130 lakhs for ordinary share alternative, Rs 127 lakhs for preference share, and Rs 120 lakhs for debt. This study proves helpful to know the EBIT level where EPS will barely cover DPS for one or more of the financial alternatives under consideration. These points can be calculated (Table 8) more accurately by the process used for finding EBIT levels for zero EPS under alternative plans,

Table 8
EBIT Level for DPS-EPS Break-even Point

				Debt.	Preference Shares	Ordinary Shares
DPS	..	..	..	Rs 1.50	1.50	1.50
EPS	..	..	..	Rs 1.50	.50	1.50
Number of Ordinary Shares (in lakhs)				30	30	34.16
PAT (Rs in lakhs)	..	..		45	45	51.24
Add Old Pref. Dividend		..		3	3	3
New Pref. Dividend		..		..	5	..
				48	53	54.24
Taxes (55%)	..	..	..	59	65	67
PBT	..	..	..	107	118	121.24
Interest—Old	..	..	..	9	9	9
New		..	..	4	..	..
Required EBIT	..	..		120	127	130.24

One has to be cautious in making use of DPS-EPS break-even point analysis. It does not mean that DPS will definitely be reduced if the EBIT levels fall below the break-even point. In fact, many companies do pay out DPS in excess of current EPS for short period of time. This analysis provides useful clues as to the relative safety of the current DPS level under adverse EBIT conditions.

Dividend coverage. The dividend coverage ratio can be used to measure the coverage of present dividends under various financing alternatives, i.e., the extent to which projected EPS will protect the DPS. This ratio, also known as payout ratio, is calculated by dividing the DPS by

$$\text{EPS, i.e., } \frac{\text{DPS}}{\text{EPS}} = \frac{1.5}{2.0} = 75\% \text{ payout.}$$

Effects on market price

DPS, EPS and market price. It is a common practice for shareholders to relate DPS and EPS with market price of equity share. The relationship of DPS with MP, known as *dividend yield*, can be expressed as follows:

$$\frac{\text{DPS}}{\text{MP}}$$

If MP of ordinary share in our hypothetical company is Rs 15 and DPS Rs 1.50, the dividend yield comes to 10%, i.e.,

$$\frac{\text{DPS}}{\text{MP}} = \frac{1.5}{15} = .10 \text{ or } 10\%.$$

The relationship of MP with EPS is expressed in two ways :

- (i) $\frac{\text{EPS}}{\text{MP}}$ or earnings-price ratio, also known as earnings yield.
 (ii) $\frac{\text{MP}}{\text{EPS}}$ or price-earnings ratio, also known as P/E multiplier.

P/E multiplier is the reciprocal of $\frac{\text{EPS}}{\text{MP}}$. The calculations of these ratios can be illustrated from our hypothetical company after assuming MP to be Rs 15 and EPS Rs 2.

$$(i) \frac{\text{EPS}}{\text{MP}} = \frac{2}{15} = .133 \text{ or } 13.3\% \quad (ii) \frac{\text{MP}}{\text{EPS}} = \frac{15}{2} = 7.5 \text{ times.}$$

The price-earnings ratio, popularly known as P/E multiplier, is widely used in making estimates of projected market prices. Maximisation of the value of P/E multiplier is regarded as one of the cherished goals of financial management. In planning the capital structure, therefore, adequate attention is required to examine the effects of various financing alternative plans on the value of P/E multiplier.

The procedure for estimating future market prices for a share is relatively a simple process since one has to project the company's EPS at some future point in time and then apply to this figure a P/E multiplier (or P/E ratio) that may seem fair and reasonable to the company's circumstances at the time. For instance, if EPS in our hypothetical company after five years is expected to increase to Rs 3 and P/E multiplier to 10, then $\text{MP} = \text{EPS} \times \text{P/E} = 3 \times 10 = \text{Rs } 30$. However, this procedural simplicity may prove misleading because future EPS is extremely difficult to project and more difficult is the judgment regarding appropriate future P/E ratio for the company.

Capital appreciation analysis. A shareholder makes investment in shares not only to earn cash dividend, but also to have capital gains or capital appreciation. Yield on equity share should, therefore, be calculated by taking into account cash dividend as well as capital appreciation. A whole range of factors affect the appreciation opportunities growing out of the new issues of debt, preference shares or equity shares. It is essential here to develop an approach to measure the value of appreciation. An attempt for its measurement, however, involves complex statistical techniques. But the essence of the measurement is fairly simple. Suppose a

person invested Rs 240 in one ordinary share of ABC Company on January 1, 1973 and after holding it for five years he sold it in early 1978 at Rs 300. During this period of five years (1973-77) he received a cash dividend of Rs 14 in 1973 and 1974 and Rs 14.50 from 1975 to 1977. The rate of return on discounted cash flow basis comes to nearly 10% as indicated below :

Year	Dividend	Sale price	Discount factor at 10%	Jan. 1, 1973 Value
	Rs	Rs		Rs
1973 (ending) ..	14.00		.909	12.7
1974 (,,) ..	14.00		.826	11.6
1975 (,,) ..	14.00		.751	10.9
1976 (,,) ..	14.50		.683	9.9
1977 (,,) ..	14.50		.621	9.0
1978 (beginning) ..	14.50	300	.621	186.3
				240.4

Total 1973 value of 1973-77 dividends
and early 1978 sale price ... = Rs 240.40
1973 Purchase price ... = Rs 240.00
Discount rate which equates cash inflows
to initial outflow ... = 10%

In the above example we have ignored taxes on dividend and capital gain. Due adjustment can be made for these taxes for determining after-tax yields for investors of varying income groups.

Control

The issue of ordinary shares involves the problem of control since each new share adds one new vote. To the extent that the additional issue of ordinary share is made to new shareholders as against the existing shareholders, there is a dilution in the control of the existing shareholders. On the other hand, the debt or debenture issue and preference share alternative do not affect the control of the existing group. The preference shareholders may have a right to elect a minority of directors in the event of lapse in dividend payment but this does not involve a major upset in control.

The location and distribution of voting power becomes an important part of the planning of security issues. Many growing companies often choose to borrow rather than to sell equity shares because of excessive fear of the risk to management by wider public holding or voting control. The actual appraisal of the risk is too complicated for a general statement. The matter must be studied on the merits of situation in a particular case. During the last few years the holding of institutional investors like LIC and UTI has become substantial in the equity share of various companies in India. This institutional holding often creates suspicion in the mind of corporate management regarding the overthrow of their control. Thus, any analysis of capital structure planning can hardly afford to ignore the factor of control as it often becomes the dominant consideration even in companies with widely dispersed shareholder groups and management becomes sensitive to the effect on new ordinary share issue on the actual or potential position of voting power.

Marketability of issue

To obtain a balanced capital structure one has not only to consider the factors of income, risk and control but also the ability of the company to market corporate securities. The wishes of the prospective security holders are just as important as the wishes of the issuer. The securities market is highly complex and constantly changing. Hence the services of persons experienced in the way of the market and in constant touch with it are required. The acceptable type and amount of security to be offered will, therefore, vary keeping in mind the advice and feed-back provided by these persons. It may even mean that the factors considered of primary importance to the company and its shareholders may be overshadowed by the consideration of what is acceptable to the prospective security holders.

Manoeuvrability

Manoeuvrability is required to have as many alternatives open as possible at the time of expanding or contracting the requirement of funds. It enables the use of proper type of funds available at a given time and also enhances the bargaining power when dealing with the prospective suppliers of funds. Often certain features of past agreements with creditors of preference shareholders limit the present ability of the company to secure additional funds. The company might have pledged its best assets to secure funds in earlier years. The company would wish elbow-room to expand and like to dispose of redundant assets (if any) and use the proceeds from their sales to reduce its liability in order to get out of the past agreements. To provide the desired manoeuvrability the company may like to include

in the agreement the provision that it can call the debt or preference shares. Whether or not the other parties will agree to this sort of agreement will depend upon respective bargaining powers at the time of making the agreement.

Flexibility

Flexibility means the capacity of the business and its management to adjust to expected and unexpected changes in circumstances. In other words, management would like to have a capital structure which provides maximum freedom to change at all times. This goal of maximum freedom to change at all times may be an ideal which is never attained. Financial flexibility, in fact, is an issue much broader than the problem of capital structure planning. It relates to the whole spectrum of uses and sources of funds and an adequate strategy for financial flexibility has to bring the uses and sources of funds into balanced position. The management may like to conserve certain sources of funds in the basic security contracts to meet the unexpected needs for funds in future. Most financial executives prefer to hold some of their debt capacity in reserve. They have to provide for certain sources of funds on which they can lay their hands confidently and quickly when the unexpected need suddenly presents itself. Here the questions arise: Is this widespread practice of conserving the debt capacity rational, particularly if a comprehensive risk analysis has been made and debt limits have been fixed? Why should management not go to the maximum limit of debt? These questions cannot be answered satisfactorily but some points can be made with a view to taking a practical approach. Financial analysis, including the analysis of debt capacity, is a crude and imperfect art. Experience teaches that one's best judgement can be wrong. The stream of investment needs or opportunities may include some which prove to be critical in the growth and development of a company. The timing of such needs is often beyond management's ability to predict. In the face of this one can very well appreciate a natural reluctance to fully commit the company's external sources of raising funds.

Timing

Closely related to flexibility in determining issue of securities is the factor of timing. The proper timing of a security issue often brings substantial savings. As we know, the securities market is dynamic and management has to make fair expectations regarding its future trends. After considering the factors of risk, income and control regarding the choice of a financing alternative, management may still pause in its decision if it feels that by waiting for a certain period the debenture or share issues can be made at a favourable price. Intelligent management tries to anticipate

the climate in capital market with a view to minimising the cost of raising funds and also minimising the dilution resulting from an issue of new ordinary shares. There are, however, limitations to the discovery of an ideal timing because of limited capacity to project trends. The management's expectations may also go wrong. The question of timing is equally relevant for making the issue of preference shares and debentures. Timing in raising funds is possible within constraints imposed by the need for funds and also the limits imposed by existing agreements with creditors. An expected decline in interest rate may suggest a postponement of borrowing in order to take advantage of cheaper money later on.

Shrewd financial managers adjust the types of funds used to change in the level of business activity and change in the cost of money. A courageous management may borrow at the time of depression to purchase the plant and equipment necessary to make the most of the following boom in sales. Then, as the boom progresses the debt is repaid out of earnings or with the proceeds from the sale of additional equity shares. When the bloom is off the boom, the company should have little or no long-term debt remaining so that it has no longer the danger of defaulting its obligations.

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CASE STUDIES

20.1. THE PRAKASH TEXTILE MILLS, LIMITED

On April 7, 1964, Mr. Prakash Sinha, the Managing Director of Prakash Textile Mills called in Mr. Thakor, the Financial Manager of the Company, and gave him the following joint letter from two shareholders sharply critical of the Company's financial policy. The writers reported widespread dissatisfaction among shareholders with the Company's policy of financing the expansion solely through equity capital.

As it was the stated intention of the writers to raise the same issues at the next annual meeting (May 1964), Mr. Sinha felt challenged to defend what he thought was a proper capital-mix for his Company. Though his immediate task was to answer the letter, he thought the issues raised should have a thorough discussion at the next meeting of the Board of Directors. He asked Mr. Thakor to prepare a memorandum report to serve as a basis for early discussion and for dealing with the subject later at the annual meeting.

The letter of the shareholders follows :

2 French Gardens
Bombay 25
April 4, 1964.

Mr. Prakash Sinha
Managing Director
Prakash Textile Mills, Ltd.
P. B. 1132, Bombay.

Dear Mr. Sinha,

As shareholders of the Prakash Textile Mills, we are writing this letter to state our objections to recent financial policies. We know that our views are shared by many other dissatisfied shareholders of the Company.

Frustration is writ large on our face. We have observed the Company using our funds inefficiently for the last several years. One of the manifold reasons for our discontent, which we place at the top, is the lack of a proper capital-mix adopted by the Company resulting in an unsatisfactory return for us—the shareholders. We draw your attention to the debt-equity ratio in the attached Table (Exhibit 1). We prepared this table to compare the performance of our Company with that of other companies in our Group (Prakash Group of Textile Mills) and also with that of the companies in the Sunrise Group of Textile Mills—our large-size competitors in this part of the country.

For reasons not known to us, our Company has desisted from borrowing any long-term funds to finance the expansion in gross block during the last four or five years. It has thus deprived itself of the benefits of a less costly method of financing assets with borrowed capital. Instead of trading *on* equity, the Company has been trading *with* equity. As a result, the return on its ordinary shares has been very unsatisfactory for the last two years. While the recent trend in the textile industry is to finance about 50% to 60% of total assets with borrowed capital, our Company has used this relatively cheaper source of funds to finance only about 6% of its total assets.

It is in the interest of our Company to start trading on equity, i.e., trading with external funds borrowed on the strength of the Company. The cost of borrowed funds for the Company will not be more than 7.5% per annum. Moreover, interest charges are a deductible item for arriving at the figure of profit on which tax is paid by the Company. Even with the present low profitability, our Company may be able to provide a larger return on ordinary shares if there is leverage¹ in its capital structure. With an adequate leverage, a small improvement in the low profitability of the Company can be amplified to enable it to distribute much larger dividend on the ordinary share capital. To refer again to the Table (Exhibit 1), the benefit of leverage is well demonstrated by the Laxmi Mills which could, without drawing on its reserves, pay 20% dividend on its ordinary shares in 1963 inspite of its low profitability compared to ours. Wearlight Mills in the Sunrise Group is also a case in point. In 1963, the profitability of the Wearlight Mills was only about two-thirds that of the Suncloth Mills. Yet, due to a proper capital-mix, the Wearlight Mills could pay as much dividend (20%) on ordinary shares in 1963 as the Suncloth Mills without utilizing its past reserves for this purpose.

In the light of the above observations, we fail to understand why the Company made an issue of additional ordinary share capital in 1961 instead of issuing debentures or taking a term-loan of the same amount. We suggest that, in future, expansion should be undertaken only with the help of long-term debt and not with the help of additions to equity. We also expect the Company to utilize its general reserves to raise the dividend on ordinary shares to at least 30% every year. This should not adversely affect the cash position of our Company. We have ample liquidity as evidenced by the ratio of current assets to current liabilities of 2.08 : 1

¹The capital structure of a company can be said to have "leverage" or "gearing" in the degree that there are fixed costs or deductions (interest and/or preferred dividends) that must come ahead of the residual claims of the ordinary shares. Because of these fixed charges, leverage makes for the condition in which small percentage changes in gross earnings or operating costs will affect in greater ratio the earnings per ordinary share.

and the liquidity ratio of 1.4 : 1 (Exhibit 1). Our Company can easily reduce these ratios to about 1.75 : 1 and 0.75 : 1, respectively, without jeopardising liquidity.

We have come to learn that the management's policy is to buy and install second-hand machinery for replacement and expansion of existing facilities. It is true that such machinery is cheaper and it involves much shorter time in acquisition. But such machineries have shorter span of economic life and greater possibility of being obsolete before the original outlay is recouped. We feel that such a policy is not technically and economically sound.

We intend to raise all these issues at the annual general meeting of our Company. May we hope to get satisfactory explanations and clarifications for the same ?

Yours faithfully,
Sd.

Vasant L. Shah
Sharad M. Parikh

Brief history of the company. Established in 1935, the Prakash Mills Ltd. was a medium sized textile mill located in a suburb of Bombay. It was one of the five mills in the Prakash Group of Textile Mills which accounted for a fair amount of sales of cotton textiles in India. The Company's total assets had grown at an average rate of about eight per cent per annum during the last five years. It worked in two shifts and produced mainly high and low count medium grade cotton cloth which included longcloths, suitings, shirtings, dhoties, mulls, sarees, sushis, twills, voiles and poplins. The Company followed the policy of selling to local agents and also to up-country merchants. Sales terms were $\frac{1}{2}\%$ 12 days, net thereafter. The same terms and conditions applied to up-country merchants but due to delays in transit, it took about three to four weeks to receive payment of up-country accounts.

Mr. Sinha, the present Managing Director, had taken charge of the Company in 1957. However, due to certain changes in the management of the Prakash Group of Textile Mills, it was only since 1959 that he had a free hand in policy matters.

After returning in 1961 from a Management Development Programme in one of the leading American universities, Mr. Thakor had suggested the possibility of making a profitable use of borrowed capital for future expansion of the Company. In considering this suggestion, Mr. Sinha had argued that there was no point in increasing fixed interest charges of the Company without a corresponding increase in sales and profits. He pointed out that Prakash Mills had been doing better than

certain other mills in the Prakash Group of Textile Mills. He conceded that the Company was not making so much profit (Exhibit 2) as the textile mills in the Sunrise Group (Exhibit 1). But, then, most of the textile mills in the Sunrise Group were producing high-priced fine and superfine varieties of cloth while the Company produced low-priced medium grade varieties of cloth only.

With respect to the rights issue made in 1961 in the ratio of two new ordinary shares of Rs 100 each for three old shares, Mr. Sinha justified the Company's action on the ground that it reduced the disparity between paid-up capital and the block (Exhibit 3). As bonus shares were subject to tax in 1961, the addition to share capital was made by a rights issue. He further thought that although the additional capital did not seem to be profitably employed by the Company, the shareholders should not ignore the gains implicit in the fact that rights issue was made at par at a time when the share was quoted at around Rs 600 in the market. The market price had remained around Rs 400 even after issue of rights.

The renovation of spindles and looms by the Prakash Mills in the last four or five years was based on the policy of buying second-hand spindles and new automatic looms. The management felt that they were justified in buying old spindles (in working condition, of course) instead of new ones because it took nearly 3-4 years to get new spindles after placing an order for the same. No waste of time was involved in buying old spindles from existing weak units in the industry or from textile mills that were in the process of liquidation. Moreover, as old spindles could be purchased at a smaller cost, the investment could be recouped in a shorter period. Although the management did not have any systematic data to prove its case, the feeling was that the cost of old spindles could be recovered within a period that was shorter than the economic life of old spindles. The cost incurred on repairs of old spindles was also not considered too high.

Mr. Sinha thought that since the time he became responsible for policy matters, the main problem faced by the Company was that of reducing the amount locked up in inventory and accounts receivable. He was concerned about the length of the average collection period¹ and the large amount of inventory (especially work-in-process) in relation to sales (Exhibit 4). He introduced measures for reducing receivables and inventory and, by the end of 1963, was able to accomplish substantial success.

¹ Average collection period is the number of days' sales represented by the accounts receivable, i.e., credit sales. The formula for arriving at the figure of average collection period is as follows:
$$\frac{\text{Accounts Receivable}}{\text{Sales}} \times 300 \text{ days.}$$
 It is also an accepted practice to substitute 360 days for 300 days in the above formula.

Exhibit 1. *The Prakash Textile Mills, Limited—Comparative Ratios of the Prakash Group of Textile Mills and the Sunrise Group of Textile Mills as on December 31, 1963*

RATIO	Unit of Measurement	Prakash Group of Textile Mills					Sunrise Group of Textile Mills					
		Prakash Mills	Kiran Lakshmi Mills	Liberty Mills	Cotton wear Mills	Average	Sunrise Mills	Sun-cloth Mills	Wear-light Mills	Fine-fab Mills	Average	
Gross Profit	%	17.52	23.68	12.32	16.92	24.67	19.02	34.34	29.16	22.26	35.51	30.57
1. <u>Total Capital Employed*</u>												
Profit before Tax	%	8.95	12.75	6.75	9.02	12.15	9.92	26.11	14.72	12.43	15.19	17.11
2. <u>Total Capital Employed*</u>												
3. Velocity of Recovery	Days	29	38	34	29	43	35	17	14	19	13	16
Current Assets	Times	2.08	1.28	0.70	1.25	1.26	1.31	1.82	2.01	2.2	1.60	1.93
4. <u>Current Liabilities</u>												
Liquidity Ratio :												
5. <u>Quick Assets</u>	Times	1.41	1.05	0.90	1.17	1.10	1.13	1.33	0.80	0.76	0.71	0.90
6. <u>Quick Liabilities</u>												
Rate of Dividend on Ordinary Shares	%	22	30	20	27	24	..	32	20	20	30	..
7. <u>Total Debt**</u>	Times	0.07	0.16	0.82	0.23	0.21	..	0.12	0.04	0.79	0.00	..
Equity												
Spindles	..	28,814	93,826	45,407	46,423	38,976	50,639	1,13,004	1,30,527	1,10,961	72,321	1,06,703
Looms	..	662	1,617	788	1,096	754	983	1,871	3,092	2,446	1,044	2,113

* Total Capital Employed = Fixed Assets + Current Assets — Current Liabilities and Provisions.

** Total Debt = Secured and Unsecured short-term loans + long-term debts.

Exhibit 2

The Prakash Textile Mills Ltd.

Income Statement for Year Ending December 31

(Rs in thousands)

	1963	1962	1961	1960
Sales	22,648	18,848	21,070	18,409
Less : Cost of Goods Sold ..	21,574	17,471	18,601	16,621
Operating Profit	1,074	1,377	2,469	1,788
Add : Other Income ..	343	150	162	163
Total Profit ..	1,417	1,527	2,631	1,951
Less :				
Donations ..	101	63	76	32
Statutory Development Rebate Reserve ..	165	156	253	518
Profit Before Tax ..	1,151	1,308	2,302	1,401
Less : Tax ..	746	804	1,185	690
Profit After Tax ..	405	504	1,117	711
TO :				
Dividend Equalisation Reserve ..	..	..	..	4
Contingency Reserve ..	..	..	..	3
Dividend ..	657	655	630	543
Retained Earnings ..	—252	—151	487	161
	405	504	1,117	711
Rate of Dividend on Ordinary Shares	22 %	22 %	35 %	30 %
Spindles	28,814	28,796	218,566	28,566
Looms	662	658	658	658
Market Price of Ordinary Share :				
Highest	443	555	615	435
Lowest	345	395	350	358
Number of Ordinary Shares ..	28,710	28,700	28,440	17,250

Exhibit 3

The Prakash Textile Mills Ltd.

Balance Sheet as on December 31

		(Rs in thousands)			
		1963	1962	1961	1960
		Rs	Rs	Rs	Rs
ASSETS					
Fixed Assets :					
Gross Block	..	16,055	14,725	13,098	11,583
Depreciation	..	8,213	7,328	6,537	5,738
Net Block	..	7,842	7,397	6,561	5,845
Investments (at cost) :					
Government Securities	..	88	230	233	233
Trade Investments	..	70	70	69	69
Total	..	158	300	302	302
Current Assets :					
Interest Accrued	..	7	6	11	4
Inventory	..	3,807	6,543	4,719	5,181
Accounts Receivable	..	2,192	4,001	2,380	1,687
Cash & Bank Balances	..	858	110	2,489	73
Loans & Advances	..	1,088	1,005	527	708
Total	..	7,952	11,665	10,126	7,653
TOTAL ASSETS	..	15,952	19,362	16,989	13,800

	1963	1962	1961	1960
	Rs	Rs	Rs	Rs
LIABILITIES				
Share Capital :				
Ordinary Shares (Rs 100 each)	2,871	2,870	2,844	1,725
4½% Preference Shares (Rs 100 each)	575	575	575	575
Total	3,446	3,445	3,419	2,300
Reserves & Surplus :				
Capital Reserve ..	105	89	85	74
General Reserve ..	5,413	5,665	5,816	5,327
Dividend Equalisation Reserve	259	259	259	259
Contingency Reserve ..	155	155	155	155
Development & Rehabilitation Reserve ..	1,409	1,409	1,409	1,409
Statutory Development Rebate Reserve ..	1,334	1,168	1,012	759
Total	8,675	8,745	8,736	7,983
Loans :				
Secured .. ..	..	3,567	..	221
Unsecured	893	..	783	546
Total	893	3,567	783	767
Current Liabilities and Provisions :				
Current Liabilities ..	1,657	2,241	2,167	1,535
Provision for Taxation ..	604	692	1,240	659
Proposed Dividend ..	657	655	630	543
Unclaimed Dividend ..	20	17	14	13
Total	2,938	3,605	4,051	2,750
TOTAL LIABILITIES ..	15,952	19,362	16,989	13,800

Exhibit 4

The Prakash Textile Mills Ltd.
Table of Ratios, 1960-1963 (Inclusive)

Ratios		Unit of Mea- surement	1963	1962	1961	1960
1. Profit before Tax/Total Assets	..	%	7.21	6.76	13.55	10.15
2. Profit before Tax/Total Sales	..	%	5.08	6.94	10.92	7.61
3. Total Sales/Total Assets	..	Times	1.42	0.97	1.24	1.33
4. Operating Profit/Sales	..	%	4.74	7.30	11.72	9.71
5. Sales/Net Fixed Assets	..	Times	2.89	2.55	3.21	3.15
6. Sales/Current Assets	..	Times	2.85	1.62	2.08	2.41
7. Sales/Inventory	..	Times	5.95	2.88	4.47	3.55
7A. Inventory/Sales	..	Days (year)				
		300 days	50	104	67	84
8. Accounts Receivable/Sales	..	(do.)	29	64	34	28
9. Net Fixed Assets/Total Assets	..	%	49.16	38.20	38.62	42.35
10. Net Worth/Total Assets	..	%	75.98	62.96	71.54	74.52
11. Net Fixed Assets/Net Worth	..	%	64.70	60.68	53.98	56.84
12. Current Assets/Current Liabilities	..	Times	2.08	1.63	2.10	2.18
13. Quick Assets/Quick Liabilities	..	Times	1.41	1.42	1.34	0.90
14. Retained Profits/Profits after Tax	..	%	—62.34	—29.89	43.64	22.59
15. Profit before Tax/Net Worth	..	%	9.49	10.73	18.94	13.63
16. Profit after Tax/Net Worth	..	%	3.34	4.13	9.91	6.92
17. Rate of Growth (Total Assets)	..	%	—17.61	13.98	23.10	3.60

Mr. Sinha asked specifically for Mr. Thakor's suggestions as to (a) the content of a satisfactory answer to the shareholders' letter, and (b) a memorandum that would set forth the basic principles for a proper policy with regard to the alternatives for raising permanent capital.

20.2. BHARTIYA ENGINEERING COMPANY LIMITED

In April 1962, the promoters of the Bhartiya Engineering Company Limited (BEC), a public limited company, incorporated in July 1961, were discussing the problem of placing its initial issue in the market. They had to decide whether the issue should be offered for subscription directly or through underwriters. The issue consisted of 35,000 equity shares of Rs 100 each; out of which promoters, directors and their friends had subscribed or agreed to subscribe for 15,000 shares.

BEC had obtained the certificate of commencing the business in February 1962. One of its promoters was Bhartiya General Suppliers (Private) Limited (BGS) which, established in 1948, had developed a group of companies and expanded their business from distribution of consumer goods to the marketing of industrial products like dyes, chemicals, mill stores, coal, textile machinery and other industrial equipment. It represented a number of manufacturers of the U. S. A., the U. K., West Germany, Switzerland, Austria, France, Japan and other countries and offered a wide range of textile machinery and auxiliary products. In short, BGS had an all-India sales organisation capable of undertaking sales of many types of products.

BEC had got a government licence to manufacture textile machinery and spare parts. Its promoter, Bhartiya General Suppliers (Private) Ltd. had already entered into an agreement with a reputable American firm for the manufacture of textile machinery and spare parts. BGS planned to substitute a fresh agreement between BEC and this American firm. BEC had negotiations with another American firm for the necessary technical know-how required for the manufacture of textile machinery. Contact had been established with a Swiss firm for the manufacture of air-conditioning equipment. BEC was going to have the import licence transferred to it from BGS for importing the required machinery for undertaking the above manufacturing programme. It had already got a licence transferred from its promoter company for the manufacture of an accessory used in manufacture of automotive engines.

BEC had acquired land and power for the establishment and operation of its engineering workshop. It proposed to make necessary selling arrangement with BGS which had been in the textile and industrial machi-

ery trade for a number of years. BEC expected to pay a reasonable dividend on its equity shares in due course of time. The profits after the start of production of textile machinery and its spare parts were estimated at Rs 10 lakhs per annum (see Exhibit 5).

The Government of India had approved the grant of a loan of Rs 10 lakhs to BEC for financing its project. BEC had sent its approval of the terms of the loan. The loan, bearing an interest of 4%, was repayable within a period of ten years; the first instalment was to commence after two years of the disbursement of the loan. The loan was going to be secured by a mortgage on the factory building and installed machinery. The authorised capital of BEC was 1,00,000 equity shares of Rs 100 each. The promoters proposed to issue 35,000 equity shares, of which directors, promoters and their friends had subscribed or agreed to subscribe to 15,000 shares. The offer of public subscription, therefore, amounted to 20,000 equity shares of Rs 100 each. This number of shares constituted the minimum subscription which, by law, had to be subscribed before the shares could be allotted by the directors. The estimated cost of the project was Rs 53 lakhs. The proposed financing of this amount is shown in Exhibit 6.

BEC was negotiating with the Industrial Finance Corporation, the Life Insurance Corporation of India and the Bank of Baroda to get its issue underwritten. On the other hand, the Secretary and the Managing Director of BEC had been approached by a number of small share-broker firms who were ready to underwrite this issue at 1% commission as against 2½% commission demanded by the IFC, LIC and the Bank of Baroda. There was, however, a sharp difference of opinion amongst the promoters and directors of the BEC on this problem of getting the issue underwritten. The company proposed to issue Prospectus in the first week of June, 1962 for the sale of its shares. The promoters had, therefore, to take an early decision on the underwriting of issue.

Following is the summary of the discussion that transpired in April 1962, at a meeting of the promoters and directors attended by Mr. Gopal Mohan (a promoter and the Managing Director of BEC and BGS), Mr. Indra Mohan (a promoter and a Director of BEC and BGS) and Mr. Chandra Mohan (a promoter and the Secretary of BEC).

Mr. Indra Mohan: "I have been trying for the last two hours to stress that BEC should go ahead with the issue of the Prospectus without engaging any underwriter for the sale of its equity shares. We, the promoters of the company, have established wide contacts in the business of selling machines and machine parts. The business community is not only well-informed about the activities of BGS but has confidence in its working. I, therefore, don't think that there shall be any difficulty in getting an active response from the investing public for the BEC's shares."

Mr. Gopal Mohan : "I do appreciate your view-point. But I suspect that the investing class is highly sensitive and fickle-minded. The Bhartiya Chemicals, another concern promoted by us in 1956 with an equally reputable Board of Directors, has not gone into production so far. It is true that this failure to go into production is due to certain unforeseen circumstances. But this is a matter not hidden from the eyes of the investing public. I think that a proper allowance should be made for this fact before making a decision on how to get BEC's equity issue underwritten."

Mr. Indra Mohan : "How do you feel about the buoyancy in stock markets, particularly after the announcement of the Central Government Budget in March, 1962 ? It should perhaps provide a good indication that we shall succeed in getting full subscription for our issue. The Reserve Bank's index of variable dividend industrial securities has moved up from 186.7 in January, 1962 to 192.7 in March, 1962. The stock market's reaction to this Budget has generally been bullish and almost all the major groups of industries and particularly the machine manufacturing industry have participated in this rise."

Mr. Chandra Mohan : "I don't see much point in basing our judgment on the behaviour of the stock market which is subject to change not only as a result of the internal development but also because of events of international character. Moreover, we should not merely be satisfied with a full subscription. We have to see that the issue is over-subscribed. I can hardly over-emphasise the fact that over-subscription of any issue has a great effect on a company's prestige. In the absence of underwriting, the issue is going to be a big gamble. We can't afford to face that situation."

Mr. Indra Mohan : "Why are you making such a strong case for underwriting ? A study of new capital issues made in 1961-62 has shown that almost 50% of the companies offering new issues had no underwriting arrangements and they did not face a difficulty in finding market for their shares because of buoyant condition in the capital market. We can also take advantage of these conditions and effect an economy in the cost of issue. If you are so insistent on getting the issue underwritten, will it not be desirable to engage the firms of share-brokers who are ready to underwrite at 1% commission as against $2\frac{1}{2}\%$ commission demanded by IFC and Bank of Baroda ?"

Mr. Chandra Mohan : "I have again to stress that prices in stock market are highly fluctuating and do not provide a sound base for taking a decision of this character."

"Moreover, we cannot ignore the advantages likely to accrue from the establishment of fruitful contacts with the big financial institutions."

These institutions are not mere underwriters. I agree with you that the cost of underwriting may be lower in case of share-broker firms. But that is, in my opinion, a false economy. The share-brokers suffer from a number of limitations. They can hardly help in a diversified distribution of shares. The sales made by them are usually confined to the speculators as against the genuine investors. These speculators, with limited funds, indulge in over-trading. With a slight reduction in price, they become nervous and begin to unload their holdings. The unloading of holdings creates a difficult situation and results in a complete collapse of the issue. I am for the sale of shares through the reputed underwriting agents who can afford to help in stabilising the price of issue in the initial stages."

Exhibit 5

Bhartiya Engineering Company Limited

Estimate of Profit

					Rs
1. Estimated Annual Sales :					
Textile Machinery	..	..	..	..	20,00,000
Spare parts	..	..	..	..	15,00,000
					<u>35,00,000</u>
2. Estimated Cost of Goods Sold :					
			Textile Machinery	Spare parts	
			Rs	Rs	
Raw Material	..	..	5,60,000	3,15,000	
Labour	..	..	2,20,000	1,00,000	
Sundries	..	..	80,000	20,000	
Water, Power and Fuel	..	..	1,00,000	1,00,000	
Overhead	..	..	1,20,000	60,000	
Depreciation	..	..	1,20,000	60,000	
Interest	..	..	40,000	20,000	
Head Office expenditure	..	..	1,00,000	40,000	
Management remuneration	..	..	50,000	30,000	
Salary and other expenses	..	..	2,10,000	1,55,000	
Total			<u>16,00,000</u>	<u>9,00,000</u>	<u>25,00,000</u>
3. Estimated Profits :					<u>10,00,000</u>

Internal Financing*

The policy relating to dividend pay-out and earnings retention varies not only from industry to industry but among companies within a given industry and within a company from time to time. Growth industries and growth companies are usually characterised with a low pay-out and high retention rates. The reasons are obvious. The more rapid the growth, the greater the demand for additional funds for expansion. The higher the profitability, the more logical it seems to retain funds and employ them to earn higher returns than would be obtained if they are paid out to shareholders and invested by them elsewhere. The concept that the greater the profitability, the more likely management is to retain the substantial percentage of earnings in the interest of rapid expansion has received a lot of attention.

DIVIDENDS

The Walter Approach. Professor James E. Walter has given a mathematical formulation to suggest that financial managers can use dividend policy to maximise the wealth position of equity holders.¹) The fundamental premise on which his theory rests is that, over long periods, stock prices reflect the present value of expected dividends and retained earnings influence stock prices mainly through their effect on future dividends.

Professor Walter has suggested a framework as an aid in understanding the relationship of dividend policy and stock prices. His contribution is indicated by his formula suggesting the fundamental factors influencing the market value of a company's ordinary shares. Operating on the

* For self-financing in the Indian corporate sector, reference can be made to Chapter 33, 'Self-Financing in Corporate Undertakings' from the author's *Corporation Finance*.

¹ James E. Walter, "Dividend Policies and Common Stock Prices", *Journal of Finance*, March 1956, pp. 29-41.

objective of maximising the wealth position of the ordinary shareholders, the appropriate dividend pay-out is suggested by the following formula :

$$V_c = \frac{D + \frac{R_a}{R_c} (E - D)}{R_c}$$

where: V_c = Theoretical market value of company's ordinary share
 R_a = Internal productivity of retained earnings
 R_c = Market capitalisation rate
 E = Earnings per share
 D = Dividend per share.

The approach suggests the importance of both the dividend payout ratio and the relationship between the market capitalisation rate (R_c) and the internal productivity of retained earnings (R_a). Whenever R_a exceeds R_c , the present worth of future dividends resulting from retention of earnings is greater than the return on the earnings employed elsewhere. The lower the dividend payout ratio under such circumstances, the higher the prospective value of the ordinary share. In other words, if the profitability of a company is higher as compared to the industry average, the retention

Table 1

Situation I	Situation II	Situation III
$R_c = 10\%$	$R_c = 10\%$	$R_c = 10\%$
$R_a = 15\%$	$R_a = 5\%$	$R_a = 10\%$
$E = 8$	$E = 8$	$E = 8$
(i) $D = 4$ (50% Payout)	$D = 4$	$D = 4$
(ii) $D = 6$ (75% Payout)	$D = 6$	$D = 6$
(iii) $D = 2$ (25% Payout)	$D = 2$	$D = 2$
(i) $V_c = \frac{4 + \frac{.15}{.10}(4)}{.10}$ =Rs 100	$V_c = \frac{4 + \frac{.05}{.10}(4)}{.10}$ =Rs 60	$V_c = \frac{4 + \frac{.10}{.10}(4)}{.10}$ =Rs 80
(ii) $V_c = \frac{6 + \frac{.15}{.10}(2)}{.10}$ =Rs 90	$V_c = \frac{6 + \frac{.05}{.10}(2)}{.10}$ =Rs 70	$V_c = \frac{6 + \frac{.10}{.10}(2)}{.10}$ =Rs 80
(iii) $V_c = \frac{2 + \frac{.15}{.10}(6)}{.10}$ =Rs 110	$V_c = \frac{2 + \frac{.05}{.10}(6)}{.10}$ =Rs 50	$V_c = \frac{2 + \frac{.10}{.10}(6)}{.10}$ =Rs 80

of earnings will benefit the company and its shareholders. If the profitability of the retained earnings in the company is lower than the industry average, a higher dividend payout is suggested because shareholders can use the funds to better advantage in alternate investments. Illustrations of the application of Walter formula in Table 1 explain this point.

In situation 1 ($R_a > R_c$), where dividend per share of Rs 4 is 50% of the earnings per share of Rs 8, the market value is Rs 100. If the payout ratio is increased to 75%, i.e., Rs 6, market value comes down to Rs 90. In contrast, the decrease of dividend to Rs 2 leads to an improvement in the market price to Rs 110. In situation II ($R_a < R_c$), contrary is the position, i.e., higher payout leads to an increase in the market price from Rs 60 to Rs 70 while reduction in payout involves a decline in the market price. In situation III ($R_a = R_c$), market value remains the same irrespective of the amount of dividend.

The reasoning of Prof. Walter's formula is also helpful in explaining dividend practices. For instance, a growth company is one in which profitability is likely to be very high and the internal productivity of retained funds is likely to exceed the capital productivity outside the company. Consequently, the growth company is expected to have a low dividend payout to maximise wealth position of its shareholders. In contrast, companies whose earning power is on the decline cannot utilise retained earnings effectively. Hence, they should have a high dividend payout.

Cost of retaining earnings concept. Cost of capital problems have been discussed in Chapter 19. Here cost of capital problem is being considered in a different setting for internal financing. The cost decision in internal financing has to be seen in relation to the cost of distributing such retained earnings. (The cost problem resolves into deciding by a company whether it is cheaper and more profitable for its shareholders to retain corporate earnings in the business or get them in the form of cash dividend. Instead of one cost we have to make comparison between two costs: the cost of retaining earnings and the cost of distributing earnings. The cost of retaining earnings is an opportunity cost, i.e., the benefits that the shareholders forego by leaving the funds in the business. Such benefits differ for individuals since the funds would be taxed and used differently for consumption and for reinvestment. These benefits are difficult to measure.) This problem can be resolved by studying as closely as possible the economic status and investment practices of the present shareholding group. In large companies, having widely scattered shareholders, this task may cost more than its worth. For calculating the cost of retaining earnings, the first step is to determine the net amount of funds available for distribution, assuming that company does not want to curtail its future operations by reducing capital structure. If the structure of capital is to

be maintained for future, internal funds have to be replaced with external which involves a cost. The second step is to adjust for the taxes that the shareholders will pay on the dividend income. These factors can be incorporated into the following formula for finding out the cost of retaining earnings.

Cost of Retaining Earnings :

$$X = [D - C(1 - BTR)] (1 - STR) \times [(1 - STR) \times R]$$

where :

X = Rupee cost of retaining earnings

D = Gross amount of dividend

C = Cost of replacing the funds paid out as dividends

BTR = Business tax rate

STR = Shareholder tax rate

R = Rate of return that the stockholder is able to earn by investing his dividend income.

Illustration

A company has to analyse the cost of retaining Rs 50,000 (D) which are otherwise available for dividend. The cost of replacing the capital paid out as dividends is assumed at 8 per cent, i.e., $8/100 \times 50,000 = 4,000$ (C); the tax rate for company's income is 55% (BTR); the dividends received by the shareholders are assumed to be taxed at 25% (STR) on the average as also their income from reinvesting the dividends. The shareholders could earn 10% (R) by investing their dividends. Then the cost of retaining earnings will be :

$$X = [(D - C(1 - BTR))] (1 - STR) \times [(1 - STR) \times R]$$

$$X = Rs [50,000 - 4,000(1 - .55)] (1 - .25) \times [1 - .25] \times .10]$$

$$= Rs 50,000 - 1,800 \times .75 \times .075 = Rs 2,711$$

Against Rs 2,711 income lost to the shareholders by retaining the earnings we have to balance the cost of distributing the earnings which is an opportunity cost equal to the profits that might have been earned for the shareholders by using the funds in the business. This is the rate of return earned by the business after taxes on the amount of retained earnings. Let us assume three internal rates of return—8%, 6% and 4%—to illustrate this point. The cost of distributing earnings under these assumed rates of return is as follows :

After-tax 8%	$50,000 \times \frac{8}{100} = 4000$
6%	$50,000 \times \frac{6}{100} = 3000$
4%	$50,000 \times \frac{4}{100} = 2000$

$$\text{Ratio of cost of retaining earnings} = \frac{\text{Rupee cost of retaining earnings}}{\text{Rupee cost of distributing earnings}}$$

$$(a) \frac{2711}{4000} = .678$$

$$(b) \frac{2711}{3000} = .904$$

$$(c) \frac{2711}{2000} = 1.356$$

The value of this ratio gives a meaningful indication that in situations (a) and (b) the cost to the shareholders of leaving the funds in the business is less than the cost of having them distributed. In other words, it is profitable to the shareholders to leave this particular sum in the business. As the ratio rises, it becomes less profitable to retain the funds. For example, ratio is .904 under situation (b) as compared to .678 in (a) due to reduction in internal rate of return from 8% to 6%. With the rate of return falling to 4% (situation c), the ratio increases to 1.356 and it is not advisable to encourage retention of earnings under such a situation. As a general policy rule, financial executives should retain earnings as long as the ratio of cost of retaining earnings is less than 1.

The dividend policy, in practice, is framed after weighing carefully the delicate considerations rather than by adoption of precise mathematical formulations. Theoretically, one may argue that a company should retain earnings as long as their use can bring a return which is above the company's cost of capital. It should continue to the point at which the incremental return is just above the cost of capital. (Retention policy should be directed towards maximising the market value of the ordinary share over the long run.) Funds should be retained to the point that the incremental rate of return for the company just exceeds the average rate of return for the industry. But the financial executive has to make a balanced judgment between the needs of the company for additional funds and the requirements of shareholders for regular income and capital appreciation.

Often a major consideration is given to the maintenance of dividend stability; and retained earnings are treated only as a residual. This is particularly the position in recession when many companies maintain dividend though earnings fall. Dividends, therefore, push up the payout ratio. If the slump in income is short-lived, this policy is logical since a reduction in a dividend rate may shaken the investors' confidence and may

impair the investment status of the company in the eyes of institutional investors like insurance companies, financial companies, investment trusts, etc. But in case recession lasts longer than expected or if the company develops some structural competitive disadvantages, the maintenance of stable dividend, beyond a prudent time, can seriously injure the finances of the company. While the dividend should not be hastily reduced, the prolonged payments of dividends in excess of earnings may serve no useful purpose.

Dividend practices

Distribute a fixed rupee amount of dividend. This policy emphasises the importance of regularity in dividends of a given size above everything else. There is no connection under this policy between dividends paid and current profits earned. This policy tends to treat ordinary shareholders somewhat like preference shareholders and gives no particular consideration to the role played by the investment of retained earning. The danger in using this policy is that if the distributions are too large and the dividend takes a large portion of accumulated working capital, the company may not be able to withstand the shock of operating losses.

Minimum rupee amount with a step-up feature. This policy is based on the proposition that the present shareholders want a dividend income of a regular rupee amount, however small it may be. But corporate profits are given more consideration in determining the dividends in this policy as compared to the policy mentioned above. The small amount of the fixed dividend aims at reducing the chance of ever missing a dividend. This policy sets the dividend low enough so that there is little chance of a default but at the same time it allows a great deal of flexibility for paying higher dividends and does commit the business to adapt the larger payments as part of the future fixed dividend. If profits increase, a larger dividend may or may not be distributed depending on the capital growth plans of the management. The emphasis is placed on internal financing and on establishing a broad foundation of equity capital for future borrowing. This is a popular policy for companies with fluctuating incomes because it provides managers with a policy guide without seriously restricting their freedom of decision-making. Certain shareholders also like it because it allows them to plan on fixed amounts of cash and at the same time there is possibility of getting a reward by way of internal growth of their investment and possibly by higher market values for their shares when profits increase.

Fixed percentage of net profit. This is the mechanical and theoretically the most flexible dividend policy as it relates payments directly to net profits. Dividends, under this policy, are a fixed percentage of profits

which is called the payout ratio and will fluctuate at exactly the same rate as profits. The first impulse may be to start a policy of this kind because it is related to the ability to pay measured by profits. But this policy leaves management limited freedom for decision-making. Internal financing with retained earnings becomes automatic and inverse to the payout ratio. For example, a 60% pay-out is a 40% pay-in ratio and a 30% pay-out is a 70% pay-in ratio. At any given pay-out ratio, the rupee amount of dividends and the rupee additions to retained earnings will both increase with the increasing rupee profits and decrease with decreasing rupee profits. One of the most appealing features of the policy to some is its conservatism and its guarantee against 'over-' and 'under'-payment.

A policy requiring the distribution of dividend as a fixed percentage of net profits will provide a good amount of retained earnings in a profitable and growing business and make it easier to finance in the future since creditors and preference shareholders will be willing to extend funds on the prospect of an increase in equity. But the picture will be different if the profits are stabilised at a low level or if they are declining. It may, therefore, be better in the interests of shareholders in the long run that corporate management increases the percentage of dividends when profits decline and decrease it as profits increase. There can also be a policy of dividend distribution based on the range of earnings, say, 40% at the highest level of profit and 75% at the lowest level, with the rate changing by 10% or so at a certain amount of rupee profit intervals.

Dividends as a fixed percentage of market value. (As shareholders often translate their dividend income into the percentage returns of market price of their shares, financial managers, it is suggested, should tie dividends to the value of company's shares rather than to its profits.) This requires first setting up a representative rate of dividend return as a target rate. The target may be the average dividend for the industry or it may be the rate paid by a closely competitive company. This policy singles out the market as the ideal valuation mechanism. No consideration is given here to the effect of dividends on internal investment conditions, or on prospects for future financing. It is based on the belief that management owes an obligation to the shareholders to adjust dividend payment with the rates paid by competitors and by the industry as a whole on their market investment values.

Determinants of dividend policy¹

It is difficult to arrive at a specific answer to any policy decision on a general basis because in the last analysis the dividend decision has to be

¹ Reference should be made to Chapter 34 'Dividend Policy' from author's book *Corporation Finance* (1977) for statutory restrictions on distribution of dividends.

taken considering the special circumstances of an individual case. We can only examine in general terms the determinants of dividend policy which are considered of major importance in a typical business situation. Applicability of these considerations, however, varies from case to case.

(i) *Legal restrictions.* Legal restrictions are significant as they provide a framework within which dividend policy is formulated. These provisions require that dividend can be paid from earnings either from current year's earnings or from past years' earnings as reflected in earned surplus. Secondly, dividends cannot be paid out of capital. It may be noted that these provisions state a maximum limit and not a minimum one. They do not prevent management from voluntarily distributing less, nor do they prevent creditors or preference shareholders from restricting the payment of dividend by contract. Dividend restrictions are stipulated in the agreements entered into with the suppliers of loans.

The underlying purpose of legal restrictions on dividends is to prevent management from reducing the equity capital below the amount that was originally paid in for the protection of creditors in case of complete liquidation of the company.

(v) *Nature of earnings.* The starting point of dividend policy is the earnings of the firm. The upper limit on dividends, practically speaking, is fixed by the earnings of the current period since the retained earnings of previous years become a part of the permanent investment of the business upon which current earnings are based. There is also an element of reluctance to reduce or to increase dividends, though the reluctance to reduce dividends is greater than the hesitancy in increasing them. A company cannot pay dividends in excess of earnings over extended periods of time without injuring the future earning capacity of the company and thereby future dividends. Therefore, a rational dividend policy should take into account the amount and behaviour of earnings from year to year. The pattern of change in earnings may vary widely among industries and individual companies are influenced by their operating and/or financial leverages. This change from year to year may be abrupt or very gradual. All these characteristics of earnings have to be kept in mind while establishing their relationship to dividends.

(vi) *Reinvestment alternatives.* Dividend payments compete with other possible uses for the current earnings and the basic choice, made by the board of directors, is whether the earnings should be distributed to the shareholders or reinvested in the business for strengthening its earning capacity and for growth. A good number of business firms consistently reinvest a major part of their earnings. The corporate management has to make a choice between dividends or the needs of the business for new capital. This choice raises other issues like the availability of sources from

which new capital can be obtained and maintenance of balance among these sources. The practical reasons may require that retained earnings should be used as a source of funds. As compared to other external sources, retained earnings have the advantage of being immediately available to business as they are realised and the decision is merely whether or not to continue to use them. There is no problem of negotiation with sources of supply. The cost of retained earnings, in terms of alternative uses foregone, is less tangible than that of debt or shares. Retained earnings do not involve immediate cash drains. Thus, given the current level of earnings, *dividend policy is a by-product of the capital budget*. The dividends paid would fluctuate from year to year depending on investment opportunities within the company as compared with those without and would be that portion of current earnings which could not be profitably reinvested. But this is not the position in actual practice as there exists a strong preference for stability and regularity in dividend payments. The corporate management has to make necessary adjustment to bring this element of regularity in dividend payments.

⑤ *Dividends and cash flows.* As dividends involve an outflow of cash, they should be provided in the firm's cash budget. The payment of dividend at the end of a certain period involves a diversion of funds from active use. It requires a reappraisal of the cash position of the business. At a given point in time there are many needs competing with dividends for the use of cash. Some of these needs may be optional while others may be having varying degrees of urgency. For instance, increase in working capital, replacement of productive equipment, retirement of debt are typical of alternatives which may have high priority.

From the point of view of a shareholder, dividend may be an essential item but the corporate management treats it as a reduction in usable cash. In a business with a strained liquidity position caused by any of a number of possible reasons, dividends may get a low priority because of their non-contractual nature. But a business which preserves a margin of liquidity at all times will be in a better position to put into practice a dividend policy with a high degree of consistency over time. Such a company is able to draw on its reserves of cash to meet a temporarily unbalanced budget instead of using the alternative of cutting out planned expenditures or dividends.

⑥ *Dividend and working capital position.* Since cash dividends reduce current assets of a company, the effect of dividend distribution upon the corporate working capital position has to be carefully weighed. It is unsound and short-sighted to impair working capital for dividend purpose. In this respect, a projection of cash requirements should be made with a view to ensuring that funds to be used for dividend distribution are spared.

Mere adequacy of current cash holding is not enough. If a company has to borrow after sometime, to replenish working capital impaired by dividend distribution, for all practical purposes it borrows to pay the dividends. For this reason a projection of cash inflows and outflows for a longer period will be helpful in formulating dividend policy.

(6) *Dividend and new capital requirements.* Even if working capital is adequate to permit a dividend distribution, the needs for additional fixed capital may make dividend payment unwise. Therefore, fixed capital requirement should also be projected and the available source for such capital should be considered before crystallising the dividend policy. Often, when an expansion programme holds out big hope of being profitable, it may not be possible for management to secure the requisite capital on reasonable terms through new security issues or through loans. Management, therefore, may have to look to the reinvestment of earnings as a major source of funds for expansion. In that case, long-term capital needs will become the chief consideration in the formulation of dividend policy. Further, if expansion involves substantial risks, there is a reinforced reason to finance it in whole or part from earnings when this is feasible.

(4) *Dividends and market value of share.* The investment worth of a share at any given time, in theory, is the present value of the stream of earnings expected to flow from the investment. Therefore, dividend income of shareholders is important as any reduction in it would reduce the investment worth of the shares. However, behaviour of market prices of shares fails to show a simple relationship of this nature. The precise effect of dividend policy on market value of shares is not at all clear. It is one of the areas where lot of complexity exists in view of wide variety of possible considerations having an impact on market prices of securities. Practical difficulties exist in quantifying these considerations. In addition, the market is made up of many different kinds of investors with different investment objectives and the market operations of these persons are influenced by emotions and rationality in varying proportions from time to time.


We can, at best, point out some useful generalisations regarding the probable effects on market price of regular *vs.* fluctuating dividends, high *vs.* low dividend payout, and variation in dividend payout. These issues are of great importance to the equity holders whose opportunities for gain or loss include changes in market price of the securities as well as dividend income. These questions are also vital to management as they have got direct effect on the saleability or otherwise of new issues of ordinary shares.

An increase in dividend payment normally acts to raise market price rather than lower it since the great majority of shareholders attach im-

portance to dividend income and also a substantial number of individual and institutional shareholders consider dividends as all important. Expectations as to future dividends are normally based on the past dividend record of the company. If a company has had a record of regularity in dividend payments and the dividend rate has been recently increased, investors will naturally expect that this increased rate will continue and may thus be prepared to pay a higher market price. At the same time, extreme changes in dividend payout over short periods of time may raise questions as to future earnings and dividend paying capacity.

One need not get the impression that dividends are all important in market price determination as there are wide variations in shareholders' objectives and shareholders' groups. This fact has a major bearing on how they will respond to various dividend policies. There are growth companies, which over longer periods have paid out little or nothing in dividends and yet have experienced a steady rise in the market price of their shares. There may be a possibility, if not the probability, of raising the level of market price by raising the dividend rate. This consideration is of real significance in management decisions as it has a bearing on the question of new financing. But the precise effect of the increase in dividend on market price can hardly be predicted. There is also an ethical question as to whether it is appropriate for management to attempt to manipulate the market in this manner, particularly if it knows that the increase in dividends cannot be maintained.

A good number of established business firms follow a dividend policy with the built-in assumption that shareholders prefer stability. It is also true that the market price of shares with stable dividend payment is higher than that of a similar share with payments which fluctuate about an average of equal amount. In contrast, it is argued that a stable dividend policy is often attained at the cost of a comparatively low dividend payout, thus working to the long-term disadvantage of the shareholders.

 *Tax position of shareholders.* The tax position of the shareholders greatly influences the desire for dividends. For instance, a company closely held by a few shareholders in high income-tax bracket is likely to payout a relatively low dividend. Such shareholders are interested in taking their income in the form of capital gains rather than in dividends which are subjected to higher personal income-tax rates. On the other hand, the shareholders in a large and widely held company may be interested in a high dividend payout.

Liberal dividends are thus unattractive from the point of view of shareholders who are in high income brackets. Such wealthy shareholders are generally better-off if a smaller portion of earnings is distri-

buted as dividends, since they can have more benefit from appreciation of the market value of their original shareholding and from bonus issues than by the receipt of taxable cash dividend. The larger the extent to which share capital in a company is owned by the shareholders in the higher income brackets, the greater the incentive to limit dividend distribution and to retain the larger part of the profits in the business.

⑨ *Other considerations.* Some companies, as a matter of policy, wish to expand only to the extent of their internal earnings. This policy is advantageous on the grounds that raising funds by selling additional ordinary shares dilutes the control of dominating group in the company. At the same time, debt borrowing increases the risk of fluctuating earnings to the present corporate owners. Thus the *objective of maintaining control* may lead to heavy reliance over internal financing and a reduction in dividend payment.

We can now consider other factors which affect the determination of dividend policy. A few instances of such factors are : the dividend policy of competitive concerns, restriction on dividend policy imposed by debt contracts, the extent to which management identifies itself with the ordinary shareholders, the existence of influential shareholders with special investment objectives, easy access to capital markets and other forms of external financing, rate of growth in a company requiring additional funds.

In view of the variety of considerations affecting dividend policy, it is very difficult to have one dividend policy which can be considered completely satisfactory in all respects. Often it is a compromise of conflicting objectives. The corporate management has to assess the relative importance of these factors and choose a line of action which is of maximum advantage considering the circumstances of the business and the objectives of its shareholders. Dividend decisions belong to critical area of financial management which brings into open the conflicts of interest between management and the shareholders and also between one group of shareholders with another.

Basic questions relating to dividend policy

1. *Do we need a dividend policy?* The scope of earnings management is somewhat broader than just the issues that have been emphasised in these policies. One of the important questions that typically confronts financial executives is : do we need a dividend policy ? A company's dividend policy may be not to have a policy, but to consider the dividend distribution issue anew each time the financial statements are prepared. This may be called an *eclectic policy*. This approach has the advantage of maximum flexibility and rationality. It is based on the assumption that the

present management group is qualified and properly equipped with tools and skills of evaluating and translating all kinds of data into a rupee dividend. Few business undertakings are qualified to do this and usually the ones that are qualified are those which most likely have well-established dividend policies of the kinds discussed earlier.

The concept of dividend policy implies that companies through their board of directors evolve a pattern of dividend payments which has a bearing on future action. Many companies, however, do not have a dividend policy in this sense. They rather act as if each dividend decision is completely independent of every other such decision. Corporate management typically takes the existing dividend rate as its starting point and regards the dividend decision as a question of bringing or not bringing a change in this rate. Usually there is a certain inertia which favours the continuance of the existing rate unless there are strong and persistent reasons to change. It may be emphasised that power to declare dividends rests in all cases on the discretion of the board of directors of the company. The financial manager has only an advisory capacity on the issue of dividend distribution. The decision not to pay a dividend may have unpleasant consequences but there are not many ways to force a dividend by direct legal action. The courts of law are reluctant to interfere in this connection and hold the view that the declaration of dividend is a matter of business judgment and should better be left to the discretion of the board.

2. *What is the relevance of the cost of distributing dividend?* Dividends continue to be distributed as long as the shareholders have a chance of earning more on the funds than could be earned by the company for the shareholders. As a decision-making tool this approach emphasises the calculation of a ratio of rupee profits that the business expects to earn (R_a) to the rupee profits that the shareholders can expect to earn outside (R_c), i.e., R_a/R_c . The signal is given to distribute dividends when this ratio is less than one but the distribution of dividends will be discontinued when it rises above one. Several doubts, however, are expressed by financial managers in considering this as their guiding tool for decision-making. *First*, it assumes that small increments of additional net profits are the only concern of the shareholders when actual growth of their capital property from additions to internal investment values is often of more concern. *Secondly*, it assumes that we know the shareholders' investment opportunities. *Thirdly*, it disregards shareholders' problems and costs of investing a small increment in dividends. *Finally*, it makes a questionable distinction between retained earnings and paid-up capital for distribution purposes. If the shareholders can earn more than their company can on retained earnings, what is to stop them from earning more than the company on their

paid-up capital, and if this is the case, why not distribute the total capital and dissolve the business ?

3. *Should dividend policy determine shareholders or vice versa ?* There is a usual assumption that a company's dividend policy is determined by its shareholders. In contrast, it can also be argued that the corporate dividend policy determines the shareholder group. It means that a company with low payout and heavy reinvestment attracts shareholders interested in capital gains rather than in current income subject to a high personal income-tax. A company with a stable dividend is said to attract those who look to it as a source of regular income while a company with a high payout attracts those who emphasise immediate income. This idea, however, carries the questionable implication that any policy which suits the management is all right because those shareholders who do not like it will sell their shares to those who like it. This approach may have a certain appeal for professional management, particularly in those companies where a diverse shareholder group makes it difficult to develop a policy that suits everyone.

4. *Should management aim at stable dividend policy ?* The search for stability in dividend policy may be overdone. The dividend policy has to be adapted to the nature and environments of company, industry and economy. If a company is operating in a highly cyclical industry like the machine tool industry, its management cannot create through regular dividends a stability that does not exist. A low payout in boom period cannot be offset by continuing dividends in prolonged period of large losses. It is better to relate dividends to earnings and not unduly attempt to protect shareholders from large fluctuations in earnings so inherent in business.

It is, however, worth noting that the longer an unbroken record of dividend payments, the harder it is to break it and the larger will be the shock to the market price of the shares from a lapse of payments. Failure to pay dividend in one year may also remove the security from the approved list of investments used by institutional investors.

Does a stable dividend policy maximise security values of a company ? There is no systematic empirical study on this question. No answer, therefore, can be given to this question on a factual basis. It is, however, expected that a stable dividend policy may lead to higher stock prices because investors value more the dividends which are certain to be received. If dividends fluctuate, investors may discount, with some percentage probability factor, the likelihood of receiving any particular amount of dividends. In other words, the same average amount of dividends received under a fluctuating dividend policy are likely to have a higher discount factor applied to them than to dividends under a stable dividend policy.

5. *Is marginal principle of dividend distribution of practical utility?* Earnings should be paid to residual owners so long as they can earn a better return elsewhere, considering the relative risks involved. This is called the marginal principle of dividend distribution. Under this principle, dividend payout ratios would be relatively high in depression years as there would be limited reinvestment opportunities; and dividend distributions would be relatively low in prosperous times because of an abundance of expansion opportunities. But this marginal principle cannot be a precise guide to dividend policy as it is often tempered by other considerations like the impact of taxes, the effect of dividend policy on stock price, conflicting interests of owners and management, etc. Research studies conducted on dividend policies followed by corporate executives indicate that they do not practice marginal analysis. Marginal principle suggests that earnings paid out to shareholders should represent a residual, i.e., funds that are less fruitfully employed in this firm than elsewhere. But an examination of dividend policies in actual practice indicates that the retained earnings are residual since the board of directors decide a reasonable payout ratio and retain the rest of the earnings.

6. *Should a company borrow to pay dividends?* To some financial executives it seems criminal to borrow cash to pay dividends. The objective may be well founded in some cases. But borrowing for the purpose of distributing dividends should not be rejected outrightly. The opposition to borrowing for paying dividends is primarily due to the excessive fear of risks to solvency that is created by the borrowing. But the management's skill in ascertaining how best to serve shareholders is a part of the calculable risk of doing business. It may even indicate poor management for a profitable business not to borrow on some occasions to carry out a regular dividend policy even if it means pledging specific assets as security. A profitable business may find itself in this position due to seasonal variations or long-run readjustment to permanent higher levels of operations. Borrowing for the purpose of dividends generally is not recommended particularly in periods of contracting operations.

DEPRECIATION

Depreciation policy is a matter of considerable importance to the financial executive because of its impact on profitability, its size in relation to total costs of operation, its relationship to replacement policy, its effect on rate of return on investment for the enterprise, its impact on the company's cash outflows to meet tax liabilities, and its ability to finance modernisation of plant and equipment.

The role of depreciation in internal financing of corporate undertakings in India can be appreciated by the study of Table 2, which shows

that the amount of depreciation provisions increased from Rs 149 crores in the First Plan to Rs 647 crores in the Third Plan, i.e., by roughly Rs 500 crores.

Table 2

Internal Financing in Joint Stock Companies

	1951-53 (750 companies)	1956-60 (1001 companies)	1961-66 (133 companies)
Retained Profits ..	87	146	253
Depreciation Provision ..	149	310	647
	<u>236</u>	<u>456</u>	<u>900</u>

Source : *Reserve Bank of India Bulletin*.

Depreciation involves conversion of fixed assets into current assets and for most companies the cash inflows from operations, measured and retained through depreciation charges, are much more substantial than retained earnings from net income. In simpler words, it may be easier for a firm to have a funds inflow through depreciation than through retained earnings. Depreciation is a business expenditure deductible from income before the computation of profit for tax liability. Retained earnings, on the other hand, come only after two drains—corporate profit taxes and shareholders' dividends.

If provision for depreciation exceeds current capital expenditure, there is an addition to working capital and it may eliminate needs for short-term borrowing. The funds may be used to pay for term-loans or retire outstanding debt. On the other hand, if depreciation allowances are less than current capital expenditure, the company will need either to draw on its own working capital and decrease it or to use funds from current earnings causing a greater retention of earnings than might otherwise be the case, or to arrange for outside borrowing.

Functions of depreciation process. We have to examine the various functions of the depreciation process in order to explore the reason why this process is considered a method of internal financing.

Allocation of cash. Most business expenses require an expenditure of cash but depreciation expense does not expend cash at the time the expense account is charged against income. The length of time, determined according to the legally prescribed procedure, over which a physical asset may be depreciated influences the amount of depreciation in any one fiscal period.

Replacement of assets. The depreciation charge against the revenue is influenced by the total cost. It is often argued that the depreciation process is a device to retain funds to replace the depreciable asset. But there is a disagreement over the valuation. Should the charge for depreciation cover only the original cost or the value when the asset is to be replaced? The orthodox view is that only the original cost may be recovered. Increasing inflationary tendencies over the past two decades have strengthened the position of the replacement school of thought. There is some agreement that the depreciation charges based upon original cost do not generate funds adequate to replace the asset if the replacement cost has risen above the original cost.

Effect on pricing. If depreciation is an accepted expense of doing business, it has to be taken care of by the pricing policy. In a competitive economy, the business firm may not, however, be in a position to maintain an administered price and as depreciation expense is not a direct cost, the price cutting may reduce the sales revenue against which the depreciation expense is charged. On the other hand, there is no reason why depreciation charge should be neglected any more than an administrative expense. Generally, the depreciation charge is a normal expense item in the profit and loss account and with no sales at all there will be no revenue against which the depreciation expense can be charged.

Retention of funds. One feature of the depreciation process is to retain some of the funds inflow from sales. But a provision for depreciation or accumulation of depreciation is not the cash itself. It is the owners' claim on assets which may or may not be in the form of cash.

The inclusion of depreciation expense in the profit and loss statement reduces the net income and hence the income-tax. It is suggested that this portion of income-tax liability or rather the amount of the non-liability due to the depreciation expense is a true saving to the business firm and provides a source of funds in as much as the business firm may now retain cash for business purposes other than the payment of taxes. But this argument has also to take into account the logic that the payment of interest on debt also reduces the income-tax but no one argues that interest on debt is a source of fund equal to the tax proportion of the amount of interest.

Source of funds controversy

A big controversy has arisen during recent years whether provision for depreciation should be considered a source of funds. Generally, companies now give special attention in their financial statements and annual reports to the existence of depreciation process as a "source" of funds.

Some argue that net income generates funds and can be considered a source of funds whereas depreciation process only releases funds. According to this school of thought, depreciation does not provide funds or any other assets for the replacement of property and the phrase "funds provided by depreciation" is intended only to adjust funds provided from income from operations. This approach, however, implies that funds do come from internal operations but not from a depreciation process.

Perry Mason attempts to resolve this difference by observing: "the amounts of depreciation included in the budget of expenses may ordinarily be considered as available funds to the financial budget and may be appropriated for any purpose."¹ Mason summarises the controversy by noting that depreciation charges may influence the selling price of the product, increase net assets other than depreciating property (if revenue covers all expense including depreciation), and retain the funds thus received although these funds ordinarily are not automatically accumulated in a separate fund awaiting investment.

The crux of the problem is that the depreciation process does convert fixed asset values into current asset values. There is a general agreement that the depreciation expense account is a debit against sales revenue and that the accumulated depreciation account is a credit against depreciating assets. Neither of these accounts contains any cash; the first is more a reduction of net worth for a given period and the latter is an accumulated surplus account. If there is no cash in either account wherein is the flow? Here, too, there should not be any confusion. The flow comes from sales. If the depreciation process does not create funds (defined as cash), then neither does the net profit from operations.

Thus, depreciation provides an area of disagreement between financial managers and accountants. From purely an accounting point of view depreciation is the recovery of the cost of a fixed asset out of current operations. It is an expense, a non-cash expense, chargeable to current operations to recover a part of the cost of the fixed asset. The accountant does not agree with the statement that depreciation generates funds. It is operations that generate funds and depreciation is merely an expense entered in the books to recover the original cost (as against replacement cost) of a fixed asset from its useful life—determined by adopting the procedure laid down by tax authorities.

For the financial manager, depreciation is the best single source of internal funds for financing gross capital formation in business. Modernisation and expansion of the industrial enterprises in the last two decades

¹ "Cash Flow" and the Funds Statement, AICPA, 1961, pp. 31-32.

has been financed to a substantial and still rising extent by these mounting depreciation charges.

There should not, however, be any conflict between these two points of view. Depreciation does not initiate a flow of funds into the firm. Revenue realised from sales is the source of funds and depreciation charges serve to keep the operation of the revenues inside the firm in the sense that they constitute a non-cash expense. What happens to this non-cash expense depends upon the growth rate of the firm and upon its financial policy.

Depreciation methods

Financial implication. The financial manager may adopt either the Written Down Value (WDV) method or straight-line method for depreciation of fixed assets. But he cannot afford to ignore the varying rates of depreciation prescribed by tax authorities for different types of fixed assets. If he wants to have a rate of depreciation which is higher than the prescribed rate, the excessive amount of depreciation will not be allowed as a deductible business expense for computation of taxable income. This additional amount of depreciation will be regarded as an allocation of profits and not as a charge against profits.

During the last decade, many companies in India, for the purpose of reporting higher profits, have replaced the WDV method of depreciation by the straight-line method. For the purposes of tax liability, the choice of one method of depreciation over the other does not make any difference. The financial aspects of WDV method *vis-a-vis* straight-line method may be analysed as follows : (1) as the amount of depreciation is higher during the early year under WDV method, income taxes are concomitantly decreased; (2) increased savings on tax under the WDV method can be reinvested and thereby used to increase the earning power of the business; (3) profits under the WDV method in the early period of asset's life are shown as a lower figure than would otherwise be reported under straight-line method, thereby introducing a financial conservatism in reporting corporate profitability.

Companies in India are required to provide for depreciation according to the procedure laid down in Section 350 of the Companies Act, 1956. This Section prescribes the written down value method of depreciation. There is another provision also in the Companies Act, i.e., Section 205 (2) (b) which allows depreciation in respect of depreciable asset for such an amount as is arrived at by dividing 95% of the original cost thereof to the company by the specified period in respect of such asset. This point will be clear from Table 3:

Table 3

Depreciation Rate % p.a. on WDV under Sec. 350 of Companies Act, allow- able under Income-tax Act	Number of years during which 95 % of cost of asset is recovered	Depreciation Rate % p.a. chargeable on straight-line method under Sec. 205 (2)(b) of Companies Act, to recover 95% of asset's original cost
(1)	(2)	(3)
5	58	1.64
10	28	3.39
15	18	5.28
20	13	7.31
25	10	9.50

Column 2 of Table 3 shows the number of years during which 95% of original cost of asset can be recovered by adopting a particular rate of depreciation on written down value method as shown in column 1 of this Table. Column 3 works out the depreciation rate chargeable on a straight-line method under Section 205 (2) (b) of the Companies Act to recover 95% of asset's original cost.

A company is helped in reporting higher profits in the early part of the asset's life by providing lower amount of depreciation on straight-line method.

Table 4 illustrates the difference in the amount of depreciation under both the methods at 20% rate of depreciation. Column 1 of Table 4 indicates that 95% of the cost of asset can be recovered roughly by the end of 13 years. The company will be allowed to provide depreciation on straight-line method under Section 205 (2) (b) at a rounded rate of 7%. Upto the end of 5th year, depreciation allowable under the written down value method is higher than straight-line method. In the 6th year, amount of depreciation is going to be more or less the same under both the methods. But afterwards written down value method will result in lower depreciation as compared to the straight-line method. Thus, a company can report higher profits by providing lower amount of depreciation under the straight-line method in the early part of an asset's life. Similar calculations can be made for depreciation at other rates. For instance, at the rate of 10% depreciation,* the straight-line method will enable a company to report higher profits roughly upto the end of 11 years, and later on for the rest of the asset's life (28—11=17 years) the company will be reporting lower profit under the straight-line method. At 25%

rate of depreciation on straight-line method, the company will be reporting higher profits only for a period of 4 years. We can thus conclude that the higher the rate of depreciation the lower the period for reporting higher profits by adopting straight-line method of depreciation.

Table 4

Showing Differences at 20% Rate of Depreciation in the Amount of Depreciation Provided under WDV Method and Straight-Line Method

Year	Depreciation allowable under the Income-tax Act under WDV method	Depreciation provided in books on straight-line method under Sec.205 (2) (b) of the Companies Act, 1956
(1)	(2)	(3)
1	20	7
2	16	7
3	13	7
4	10	7
5	8	7
6*	7	7
7	5	7
8	4	7
9	3	7
10	3	7
11	2	7
12	2	7
13	1 (95% cost recovered)	7
14	1	7
15	1	7
16	1	7

*Amount of depreciation same under both the methods.

The straight-line method may be found advantageous by new companies or old companies expanding at a fast rate by installing fixed assets continuously. Such companies would be in a position to report higher profits with a view to distributing dividends to shareholders on account of limited provision for depreciation under this method. These companies may find it difficult to distribute dividends if written down value method is adopted. But the companies having no plan of continuous addition of fixed assets may find this method of depreciation of doubtful merit as they

would be distributing higher dividends by reporting higher profits. This practice may not be financially prudent.

Development rebate. The allowance of development rebate on the installation of plant and machinery has also been a very significant source of internal funds. It brings a substantial tax-saving for the industrial firms making additions continuously to their plant and machinery. According to the Reserve Bank study of 'Finances of Joint Stock Companies, 1965-66', the contribution of development rebate reserve to the total assets formation of 1,333 companies during the Third Plan period was Rs 129 crores or 6.8%. The continuance of this allowance has become a matter of great controversy particularly after the publication of the Bhoothalingam Committee Report on Rationalisation and Simplification of Tax Structure, in 1967.

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CASE STUDY

21.1. ASHOK CHEMICALS AND FERTILIZERS COMPANY

On April 2, 1963, the Board of Directors of the Ashok Chemicals and Fertilizers Company (ACFC) met to consider payment of a dividend on the ordinary shares of the Company for the year 1962. Mr. Ajay Chandra, Chairman of the Company, had marked a fundamental difference in the approach of the members of the Board to the dividend policy followed in the Company. He was interested in evolving a unanimous viewpoint on the Company's future dividend policy.

Financial results of the operations of the Company from 1956 to 1962 were presented to the Board (Exhibit 1). The Board comprised the Chairman and eight directors who were all persons of varied experience in business administration. They had been associated with the Company for more than six years. The Board was unanimous regarding the recommendation for payment of dividend totalling Rs 26,250 to the holders of the Company's 7% cumulative preference shares.

ACFC was registered as a public limited company in 1937 for carrying out the production of light and heavy chemicals, fertilizers and raw materials for the pharmaceutical industry. It had a number of difficult years during the 1940's. But its growth since 1955 had been both rapid and steady. It had widely diversified its line of production resulting in a continuous rise in its sales and earnings during the last seven years (Exhibit 2).

The Board used various methods for financing the Company's substantial growth during the period of last seven years. In 1960, the Company made a rights issue of 7,500 shares to the existing shareholders. This resulted in an increase of the Company's share capital from Rs 22.4 lakhs in December 1960 to Rs 29.5 lakhs in 1961 and Rs 29.9 lakhs in December 1962 (Exhibit 1).

Another avenue of financing followed by the Company was the acceptance of loans and deposits from banks and the public respectively. The Company, however, did not incur any long-term debt.

Though the measures mentioned above helped significantly in financing the Company's growth, the cash flow made available by the provision for depreciation constituted a major source of funds. The Company's depreciation policy was to depreciate its assets, both for accounting and income-tax purposes, over the shortest period of time allowed by the Income-tax Act. The Company's policy on the retention of earnings was essentially the complement of its dividend policy.

The Directors of the Company had not formulated a definite dividend policy. A number of practices had gradually evolved. Foremost of these was the practice of declaring 20% dividends during the last three years as a basic rate; any sum in addition to this was called a bonus payment. There was no fixed pay-out ratio (Exhibit 2). Some of the Directors favoured the idea of having maximum flexibility in dividend distribution.

The Company was envisaging installation of a new chemical plant involving an investment of Rs 40 lakhs. This plant was scheduled to be completed within a period of eight months beginning from October, 1963. The Board of Directors had to consider the arrangement of funds for this new plant.

Ordinary shares in ACFC were owned by 3,441 persons (Exhibit 3). Roughly, one-third of the shares were held by nine persons. The income status of the shareholders was not known to the case writer. The feeling was that some of the shareholders might desire capital gains through retention of earnings by the Company, whereas others would prefer dividend income.

Reports from stock-brokers handling transactions in the Company's ordinary shares had provided a feed-back to the members of the Board about the expectations of the stock-market. It had been brought to the notice of the Directors that the market had discounted the possibility of a lower dividend payment. Shares of other chemical companies were priced on the market to yield from 3 to 10 per cent on current dividend rates (Exhibit 5). A statement showing the range of market price for ACFC's ordinary shares was also placed before the Board's meeting (Exhibit 4).

The difference in the viewpoints of Directors seemed basically to centre on whether the objective of the dividend policy should be to maximize the value of ordinary shares over a period of time or to meet the present liquidity preference of the shareholders.

Mr. Shah, a Director of the Company (holding directorships in two machinery manufacturing companies), argued against any change in the rate of dividend. He made a case for a stable dividend policy with only infrequent changes. He believed that a publicly owned company like ACFC should always pay a dividend when earnings justified such payment. Admitting that the stock market might appear erratic at times, he stated that it had usually been correct in appraising a company's future profitability. He believed that the market preferred a current to a future dividend. Companies paying regular dividends, in his view, enjoyed a higher price-earnings ratio than those not paying dividends. Since the Board of Directors operated the Company for the benefit of its owners, he thought

that its dividend policy should be aimed at maintaining a high market value by paying stable and constant dividends to shareholders. He emphasised that shareholders in a Company were satisfied when they received even nominal dividends and were less disposed to trouble the management.

Mr. Jain, a leading textile industrialist and a Director of the Company, supporting the viewpoint of Mr. Shah, mentioned that the objective of dividend policy in the Company should be the maintenance of a stable dividend yield which required adjustment in the amount of dividend to the market price of shares. In this way, the shareholders of the Company could count on relative stability in their dividend income and in return for this stability were likely to reward the Company with greater allegiance.

Mr. Mehta, a member of a leading managing agency house and a Director of the Company, stressed that the dividend should be set at a competitive level either in rupee amount or in yield in order to make the shares at least as attractive as those of other companies competing for funds in the capital market.

Mr. Ajay Chandra and three other Directors of the Company, on the other hand, stressed the Company's need for retained earnings. If that view was accepted, the amount of dividend paid would then be a residual. Mr. Ajay Chandra felt that a growing company such as ACFC should give priority to its growing needs for working capital and investment in fixed assets. He believed that the market price of the ordinary share or the way the price fluctuated with dividend should not be of prime concern to the management. He recognized that assignment of priority to the Company's needs over the shareholders' desires could make shares relatively unattractive to some purchasers but he felt that long-term shareholders would receive larger returns through profitable reinvestment by the Company of a major part of its earnings.

Mr. Ajay Chandra was not in favour of having a pay-out percentage of more than 50 (Exhibit 2). He thought that a policy of relative constancy of dividend payout would meet the present pressing need for funds. He expressed his satisfaction that the demand for finance was growing at a time when profits were rising and also when the possibilities of expansion were most alluring. A stable payout policy under these circumstances would generate a large volume of earnings after dividends and this amount could be made available for expansion. Retained earnings, he admitted, might not meet all the Company's financial needs but they were expected to go a long way.

Endorsing the viewpoint of Mr. Ajay Chandra, Mr. Modi, a Director of the Company, suggested an issue of bonus shares. He thought that the

sum realised by selling bonus shares by the shareholders would be subject only to the capital-gains tax.

Mr. Bhatt, a Director of the Company—who had been exposed to a Business Administration Programme—introduced a new dimension to the discussion by suggesting that the objective of the Company should be to maximise the market value of its shares. Market value, he believed, could be maximised at times with a low dividend payment and at other times with a hundred per cent pay-out of earnings. In support of his viewpoint, he referred to the formula of Professor Walter¹ which he thought made good sense in the situation :

$$V_c = \frac{D + \frac{R_a}{R_c} (E - D)}{R_c}$$

where : V_c = Market Value of the Company's ordinary shares

R_a = Productivity of retained earnings

R_c = Market Capitalization rate

E = Earnings per share

D = Dividends per share.

Mr. Bhatt, however, recognized the difficulty in computing the market capitalization rate. Elaborating this formula, he stated that when R_a was greater than R_c , the share market price was likely to be maximum if no dividends were paid. On the contrary, when R_c was higher than R_a , the market value was expected to be maximum only if a hundred per cent payout policy was followed. In case of $R_a = R_c$, the dividend policy of the Company was largely a matter of indifference.

¹ Jame E. Walter, "Dividend Policies and Common Stock Prices", *Journal of Finance*, March 1956.

Exhibit 1

Ashok Chemicals and Fertilizers Company

Balance Sheet as on 31st December

(In lakhs of Rs)

	1962	1961	1960	1959	1958	1957	1956
Fixed Assets :							
Gross Block	147.3	133.0	122.9	88.9	80.7	74.8	68.8
Less Depreciation	61.3	51.4	44.0	37.4	30.7	24.0	17.5
Net Block	86.0	81.6	78.9	51.5	50.0	50.8	51.3
Current Assets :							
Inventory	47.4	51.2	55.9	42.0	29.1	40.5	16.6
Debtors	29.6	22.5	12.8	9.7	12.4	14.2	11.8
Loans & Advances	9.0	6.9	10.8	16.0	7.3	5.8	7.0
Cash & Bank Balance	0.7	2.3	0.6	1.4	1.1	1.3	1.7
	172.7	164.5	159.0	120.6	99.9	112.6	88.4
Share Capital :							
Ordinary shares of Rs 1000 each (No. subscribed)	29.8 (29800)	29.5 (29525)	22.4 (22420)	22.4 (22420)	22.4 (22420)	22.2 (22236)	22.0 (22211)
Preference shares of Rs 100 each (3,750, 7% Cumulative)	3.7	3.7	3.7	3.7	3.7	3.7	3.7
	33.5	33.2	26.1	26.1	26.1	25.9	25.7
Reserves and Surplus :							
Capital	0.4	0.2	0.1	0.1	0.1	..	..
General	6.7	6.7	6.7	0.7	0.7	5.4	9.7
Development and Rehabilitation	14.3	14.3	14.3	14.3	14.3	11.2	5.3
Statutory Development Rebate	11.2	8.8	4.4	3.5	1.4	..	..
Surplus	3.1	0.4	0.3	0.4	..	..	0.1
	35.7	30.4	25.8	18.9	16.5	16.6	15.1
Loans : Secured	21.7	15.1	25.3	16.7	19.1	..	..
Unsecured	40.8	41.2	37.6	31.0	23.0	56.4	37.0
Current Liabilities and Provisions	41.0	44.6	44.2	27.9	15.2	13.7	10.6
	172.7	164.5	159.0	120.6	99.9	112.6	88.4

Exhibit 2
Ashok Chemicals and Fertilizers Company
 Analysis of earnings

(In lakhs of Rs)

	1962	1961	1960	1959	1958	1957	1956
Sales	248.80	210.20	207.60	172.70	146.60	143.40	109.10
Earnings before Depreciation and Development Re- bate and Taxation	35.02	30.27	30.64	23.33	12.38	12.44	6.78
Depreciation and Development Rebate	12.20	12.47	7.54	8.83	8.15	6.52	3.25
Taxation	12.46	10.00	10.15	7.61	1.20	..	..
Earnings after De- preciation and Taxation	10.36	7.79	12.95	6.89	3.03*	5.92*	3.52
Last year's balance carried down	0.38	0.31	0.35	0.01	0.01	0.10	0.00*
Transfer from Reserves	..	..	..	..	4.66	4.54	1.50
Balance (available for transfer to Reserves and Distribution of Dividends)	10.74	8.10	13.30	6.90	4.67	4.64	1.50
Transfer to Reserves	..	..	6.00	..	..	..	—
Dividend :							
Preference shares		0.26	0.26	0.27	0.19	0.19	0.19
Ordinary shares		7.46	6.73	6.28	4.47	4.45	1.21
(percentage of dividend)		(30)†	(30)†	(28)††	(20)	(20)†	(10)
Carry forward		0.38	0.31	0.35	0.01	0.01	0.10

* Transferred to Development and Rehabilitation Reserve.

† Includes bonus of Rs 10 per share.

†† Includes bonus of Rs 8 per share.

Exhibit 3

Ashok Chemicals and Fertilizers Company

Statement showing holding of shares on December 31, 1962

Holdings of Shares	No. of persons	No. of persons
Upto 100	3,420	18,150
Above 100 but below 200	12	1,800
Above 200 but below 1000	5	1,485
Above 1000	4	8,445
	3,441	29,880

Exhibit 4

*Ashok Chemicals and Fertilizers Company*Statement showing the highest and lowest prices
of shares from 1958 to 1963

Year	Price	
	Highest	Lowest
	Rs	Rs
1958	402.00	235.00
1959	640.00	365.00
1960	885.00	520.00
1961	889.00	630.00
1962	880.00	580.00
1963 (upto March)	775.00	545.00

Exhibit 5

Ashok Chemicals and Fertilizers Company

Financial data relating to selected chemical producers for the year 1961-62

(Rupees in lakhs)

Year of establish- ment	Paid-up Capital		Sales		Gross Profit as % of sales		Profits before tax		Tax Provision		Profits after tax		Dividend		Retained Profits		Dividends as % of profit after tax		Retained profits as % of profits after tax		Dividend as % of Paid-up Capital		Yield*
	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs		
..	1936	160	150.1	22.2	19.0	2.9	16.1	12.6	3.6	77.9	22.1	12.6	10.12										
..	1939	168	399.5	10.0	18.6	..	18.6	8.2	10.5	43.9	56.1	4.9	6.98										
..	1939	362	531.1	7.6	16.4	..	16.4	20.9	-4.5	127.6	-27.6	5.8	4.42										
..	1901	80	222.6	5.1	8.3	5.0	3.3	6.7	-3.4	204.3	-104.3	8.5	N.A.										
..	1939	45	280.3	13.4	29.2	13.4	15.8	10.3	5.5	65.1	34.9	22.9	3.73										
..	1919	32	166.7	8.5	10.9	0.6	10.3	4.0	6.3	38.8	61.2	12.5	6.81										
..	1956	96	166.4	19.6	32.6	15.5	17.1	10.3	6.8	60.2	39.8	10.7	5.61										
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*Calculated on the basis of closing market price of the respective shares of the companies as on 31.3.1963.

N.A. = Not Applicable.

Issue of Bonus Shares

We plan to study the various considerations that affect the corporate management interested in making an issue of bonus shares. In fact, a detailed exercise is undertaken to cross the 'hurdles' laid down under the guidelines prescribed by the Controller of Capital Issues. We have also tried to see the relevance of these restrictions from the point of view of protecting the interest of investors.

INTRODUCTION

The Oxford English Dictionary gives the meaning of bonus share as : "an extra dividend paid to shareholders in a joint stock company from surplus profits." In the legal context, however, the meaning undergoes a big change. A bonus share is not a dividend. It is governed by so many regulations that it cannot be declared like a dividend. The guidelines issued by the Ministry of Finance prohibit declaration of bonus shares in lieu of dividends. Bonus shares may be issued in addition to dividends.

The declaration of bonus shares results in conversion of accumulated reserves into capital. Some financial analysts believe that bonus issue leads to an increase in market price by broadening the share ownership, while some feel that they bring about real value enhancement. Others emphasise that bonus shares offer tax benefits to higher income bracket investors because they are not treated as income for tax purposes. Still others feel that although bonus shares may have no apparent effect on the market value of the investment, they are useful in conserving corporate cash and are, therefore, an inexpensive way to raise capital for expansion. Another school of thought claims that bonus issue, like stock split, merely cuts the same loaf of bread into a large number of thinner slices.

Author is grateful to Mr. Y. Subrahmanyam in jointly developing material for this Chapter.

The Companies Act, 1956, takes little notice of the bonus shares excepting for a passing reference in Section 78 (2)(a) that share premium may be applied by a company for issuing fully-paid bonus shares to the members and in Section 80 (5) which provides for the issue of fully-paid bonus shares, out of capital redemption reserve. However, the guidelines of the Ministry of Finance together with the conventions developed over years made the issue almost a settled law.

Under the Capital Issues Control Act, 1947, the issue of bonus shares requires the sanction of the Controller of Capital Issues. The company can examine its application with the help of the guidelines issued by the Ministry of Finance before seeking the approval of the Controller of Capital Issues (see Appendix).

The bonus issue is permitted to be made out of free reserves built out of the genuine profits or share premium collected in cash only.

The point that very often arises is the meaning of the term "free reserve". The term 'reserve' has been given a negative definition in Schedule VI to the Companies Act, 1956, where it is stated that the expression 'reserve' shall not include any amount written off or retained by way of providing for depreciation, renewals or diminution in value of assets or retained by way of providing for any known liability. However, the term 'free' which precedes the word 'reserves' would have to be construed according to the ordinary dictionary meaning and, therefore, the real meaning of 'free reserves' would mean reserves which are free from any encumbrance. The term 'free reserves' does not mean reserves which are free for distribution by way of dividends. There is nothing in the Act or Rules to construe the meaning of the term in such a narrow sense. It is, therefore, clear that all types of reserves, whether capital or revenue, would fall under the term 'free reserves' provided they are not otherwise encumbered.

Free reserves 'built out of genuine profits' may mean that the reserves should have been created by transfer through profit and loss appropriation account only, thus specifically excluding those reserves created as a result of revaluation of assets or without accrual of cash resources.

In addition, development rebate reserve is considered as free reserve for the purposes of calculation of residual reserves test and is also allowed to be capitalised.

Thus, bonus issue can be made out of the following :

1. Balance in the profit and loss account.

Though bonus issue can be made out of current profits, usually bonus shares are declared out of accumulated profits.

2. General reserves.
3. Capital profits or reserves, not retained for any specific purpose.
Capital reserves appearing in the balance sheet of the company
(a) as a result of revaluation of assets, or (b) without accrual
of cash resources, will not be allowed to be capitalised.
4. Balance in the sinking fund reserve for redemption of debentures
after the debentures have been redeemed.
5. Development rebate reserve, Development allowance reserve,
etc., allowed under the Income Tax Act, 1961.
6. Capital redemption reserve.
7. Share premium received in cash.

The last two items can be used to declare fully-paid bonus shares only.

DETERMINING THE QUANTUM OF BONUS ISSUE

Following the guidelines issued by the Ministry of Finance, the maximum amount which could be capitalised in one instalment can be worked out with the help of the tests mentioned below :

Residual reserves test. Residual reserves after the proposed capitalisation should be at least $33\frac{1}{3}$ per cent of the increased paid-up capital.

The following points have to be kept in mind while calculating the residual reserves :

- (a) Capital redemption reserve, if any, remaining after the bonus issue will not be included in computing the minimum reserves of $33\frac{1}{3}$ per cent.
- (b) All contingent liabilities, disclosed in the audited accounts which have a bearing on the net profits, shall be taken into account in the calculation of the residual reserves of $33\frac{1}{3}$ per cent.
- (c) Capital reserves appearing in the balance sheet of the company as a result of revaluation of assets or without accrual of cash resources will not be taken into account in the computation of residual reserves of $33\frac{1}{3}$ per cent.
- (d) Paid-up capital includes equity as well as preference share capital for purposes of this test.

The following formula is useful in finding out the maximum amount available for capitalisation after applying the minimum reserves test :

$$(FR - X) = \frac{1}{3}(C + X)$$

where FR stands for free reserves, C for existing paid-up capital of the company, and X for the amount that can be capitalised.

Let us illustrate, assuming the following particulars :

- | | |
|--|---------------|
| 1. Existing paid-up capital of the company (C) | Rs 50 lakhs |
| 2. Free reserves (FR) | Rs 60 lakhs |
| 3. Average profits during the three preceding years (AP) | Rs 22.5 lakhs |

Substituting the figures assumed in the formula :

$$(60 - X) = \frac{1}{3}(50 + X)$$

$$180 - 3X = 50 + X$$

or, $X = \text{Rs } 32.5 \text{ lakhs.}$

When a sum of Rs 32.5 lakhs is capitalised, expanded capital would be Rs 82.5 lakhs and the residual reserves would be Rs 27.5 lakhs, which are $33\frac{1}{3}$ per cent of the expanded capital. The capitalisation of any amount beyond Rs 32.5 lakhs would bring down the residual reserves to less than $33\frac{1}{3}$ per cent of the expanded capital. Thus, Rs 32.5 lakhs is the maximum amount which could be capitalised.

Capitalised value of earnings test. 30% of the average profits before tax of the company for the previous three years should yield a rate of dividend on the expanded capital base of the company at 9 per cent.

The maximum amount that could be capitalised can be arrived at with the help of the formula¹ $\left(\frac{10}{3}AP\right) - C$, where AP stands for average profits, and C for the existing paid-up capital of the company.

In our illustration, the average profits of the company were Rs 22.5 lakhs, during the preceding three years. Substituting the values in the

¹ 30% average profits should yield 9% dividend on expanded capital,

$$\text{i.e., } \frac{30}{100} AP = \frac{9}{100} (C + X)$$

$$\text{or } \frac{30}{100} \times \frac{100}{9} AP = C + X$$

$$\text{or } X = \left(\frac{10}{3} AP\right) - C$$

formula, we get Rs 25 lakhs as the maximum amount available for capitalisation when the capitalised value of earnings test is applied :

$$\left(\frac{10}{3} \times 22.5\right) - 50 = \text{Rs } 25 \text{ lakhs.}$$

After capitalising Rs 25 lakhs, the expanded capital would be Rs 75 lakhs, on which 9 per cent rate of dividend works out to Rs 6.75 lakhs, which is equal to 30 per cent of average profits of Rs 22.5 lakhs. The capitalisation of any amount beyond Rs 25 lakhs would mean that 30 per cent of the average profits would not be able to give 9 per cent dividend on expanded capital.

Overall maximum limit. At any one time, the total amount permitted to be capitalised for issue of bonus shares out of free reserves shall not exceed the total amount of paid-up equity capital of the company. It means that the overall maximum limit on issue of bonus shares is one for one.

However, the Government will consider relaxation of this limit on merits in respect of companies which want to raise capital from Indian residents—

- (a) to finance approved schemes of expansion or diversification; or
- (b) which are required to bring down the foreign shareholders under Foreign Exchange Regulation Act, 1973, for continuance of existing business activities.

In such cases companies are advised that a 'composite application', i.e., application for issue of bonus shares along with the application for issue of shares to Indian residents for cash, shall be submitted to the Controller of Capital Issues.

In our illustration, the maximum amount which can be capitalised by the company for the issue of bonus shares has to be the least of the amounts obtained through the above three tests :

- (i) Rs 32.5 lakhs—ensuring $33\frac{1}{3}$ per cent of the expanded paid-up capital as residual reserves;
- (ii) Rs 25 lakhs—ensuring a minimum 9 per cent rate of dividend on the expanded capital base of the company; and
- (iii) Rs 50 lakhs—100 per cent of the existing paid-up capital.

Rs 25 lakhs is the smallest sum and, therefore, only Rs 25 lakhs can be capitalised for issue of bonus shares by the company. The bonus issue can be made in the ratio 1 : 2, i.e., one bonus share will be issued for every two existing shares.

Time lag test. As per the guidelines of the Ministry of Finance published in the Gazette of India dated 1-4-76, not more than two bonus issues will be allowed to a company over a period of five years. Between two successive announcements of bonus issues of a company, there should be a time lag of at least twenty-four (24) months.

The company may make a further application for issue of bonus shares twelve (12) months after the scrip in respect of last bonus issue is listed (if the company's shares are quoted on stock exchange) or after the completion of despatch of the share certificates by the company.

Other provisions regulating the issue of bonus shares are as follows :

- (1) Consequent to the issue of bonus shares if the subscribed and paid-up capital exceeds the authorised capital, a resolution should be passed at the general body meeting to increase the authorised capital.
- (2) There should be a specific provision in the Articles of Association of the company, if it has not adopted Table A, for the capitalisation of reserves, etc. If not, the company should alter the Articles suitably by passing a resolution at the general body meeting.
- (3) The company should pass a resolution at general body meeting for the bonus issue before an application is made to the Controller of Capital Issues. In the resolution, the management's intention regarding the rate of dividend to be declared in the year immediately after the bonus issue should be indicated.
- (4) Bonus issues are not permitted unless the partly-paid shares, if any existing, are made fully paid-up.
- (5) All applications for bonus issue made to the Controller of Capital Issues should be signed by a person not below the rank of director/secretary together with a certificate affirming that the facts stated in the application are true to the best of his knowledge and nothing has been withheld.
- (6) The application should also be accompanied by a certificate from auditors that they have verified the information furnished by the company and the proposal meets all the requirements of the guidelines in force issued by the Government.
- (7) In the case of composite proposals for issue of right shares and bonus shares, the bonus shares application will be sanctioned first and then the rights issue after some time lag.

A practical example will clarify the application of the guidelines of the Ministry of Finance to companies and illustrate the techniques developed in this study in evaluating the proposal for issue of bonus shares.

CASE STUDY OF BONUS ISSUE IN COLOUR-CHEM LIMITED

In August 1976, the Board of Directors of Colour-Chem Limited were considering the proposal for issue of bonus shares to its equity shareholders. The particulars relating to the company collected for this purpose are as follows :

(In lakhs of Rs)

	March ending			
	1976	1975	1974	1973
Pre-tax profits	324	277	274	169
Tax provision	208	156	123	72
Net Profit	116	121	151	97
Dividend : Equity	50	50	50	33
Preference	2	..	..	..
Retained earnings	64	71	101	64
<i>Equity Share Data</i>				
Earnings per share (Rs)	28	29	37	35
Dividends per share (Rs)	12	12	12	12
Book value per share (Rs)	195	179	162	205
Market value per share (Rs) :				
High	320	280	368	316
Low	200	194	235	230

The market value of the share during August 1976—High Rs 320 and Low Rs 295.

(In lakhs of Rs)

	As on March 31			
	1976	1975	1974	1973
<i>Share Capital</i>				
Ordinary share capital (4,12,500 shares of Rs 100 each)	412.5	412.5	412.5	275
11% Preference shares (1,37,500 shares of Rs 100 each— Rs 50 per share called up)	69	..	..	..
Free Reserves	310	247	177	219
Development Rebate Reserve	81	80	77	71

Note : The company had made a bonus issue in 1973-74 in the ratio 1 : 2.

Using the various tests explained earlier, the application of the company for issue of bonus shares can be examined.

Time-lag test

The company issued bonus shares in 1973-74 and the application for the new bonus issue was made to the Controller of Capital Issues in September 1976, i.e., after more than 29 months.

The required minimum time lag of 12 months for submitting the new proposal after the last bonus issue is clearly met.

The requirement that there should be a time lag of at least 24 months between the successive announcements of bonus issue is also met.

Again, there was only one bonus issue during the last four years and, therefore, the condition that not more than two bonus issues will be permitted to the company over a period of five years, will not come in the way of the present application.

Residual reserves & capitalised value of profits tests

(i) Existing paid-up capital of the company (C)

Equity	Rs 412.5 lakhs
Preference	Rs 69.0 lakhs
Total	Rs 481.5 lakhs

(ii) Free Reserves (FR)

Free Reserves as per Balance Sheet	Rs 310 lakhs
Development Rebate Reserve	Rs 81 lakhs
	Rs 391 lakhs

(iii) Average profits of the

$$\text{preceding three years (AP)} = \frac{324 + 277 + 274}{3}$$

$$= \text{Rs } 291 \text{ lakhs.}$$

(a) Maximum amount which could be capitalised after the residual reserves test:

$$(FR - X) = \frac{1}{3}(C + X)$$

$$(391 - X) = \frac{1}{3}(481 + X)$$

$$1173 - 3X = 481 + X$$

$$\text{or } X = \text{Rs } 173 \text{ lakhs.}$$

- (b) Maximum amount which could be capitalised after the capitalised value of profits test :

$$\begin{aligned}
 &= \left(\frac{10}{3} AP \right) - C \\
 &= \left(\frac{10}{3} \times 291 \right) - 481 \\
 &= \text{Rs } 489 \text{ lakhs.}
 \end{aligned}$$

- (c) Overall maximum amount allowed to be capitalised is Rs 412.5 lakhs which is 100% of the existing paid-up capital.

Thus, the Colour-Chem Limited can capitalise a maximum sum of Rs 173 lakhs (least of the above three) for issuing bonus shares to the shareholders.

At the Annual General Meeting of the Company held on 16th September, 1976, the members had approved the capitalisation of a sum of Rs 165 lakhs out of the General Reserve as on 31st March, 1976 and the issue of 1,65,000 equity shares of Rs 100 each as fully paid bonus equity shares in the ratio of two bonus shares for every five existing equity shares of the company, subject to the requisite consent of the Controller of Capital Issues. An application was accordingly made to the Controller.

The Controller of Capital Issues, however, indicated that since the residual reserves of the Company, after the proposed bonus issue, would be less than $33\frac{1}{3}$ per cent of the paid-up capital of the company (inclusive of the amount on the preference shares of the Company called up since 31st March, 1976), the application was liable to be rejected unless suitably modified.

While the Company filed its application based on the accounts finalised as on 31st March, 1976, the Controller of Capital Issues had also taken into account the amount called up by the Company on its preference shares since March 1976. With the preference shares being fully paid up, the total paid-up capital increased from Rs 481.5 lakhs to Rs 550.0 lakhs. When the residual reserves test is applied on this total paid-up capital, the maximum amount that could be capitalised works out to Rs 155.75 lakhs.¹

¹ Residual reserves test :

Paid-up capital (C) Rs 550 lakhs

Free Reserves (FR) Rs 391 lakhs

$$(FR - X) = \frac{1}{3}(C + X)$$

$$(391 - X) = \frac{1}{3}(550 + X)$$

$$1173 - 550 = 3X + X$$

or $X = \text{Rs } 155.75 \text{ lakhs.}$

The Board of Directors of the Company therefore decided, in exercise of the authority granted in terms of the resolution passed by the members at the said Annual General Meeting, to modify the proposal so as to capitalise a sum of Rs 1,54,68,700 and to issue 1,54,687 equity shares of Rs 100 each as fully paid bonus equity shares in the ratio of three bonus equity shares for every eight existing equity shares. The Company has since received the consent of the Controller of Capital Issues.

INVESTORS AND BONUS ISSUES

We have to examine the impact of bonus issue on the interest of shareholders. It is the usual feeling that shareholders gain doubly by the issue of bonus shares. In the first instance, their equity in the company increases though they may be getting reduced rate of dividend after the bonus issue. Secondly, they gain by increased confidence of the investing public in the soundness of the company. However, the corporate practices of issuing bonus shares have come under a lot of criticism. Often companies issue bonus shares without realising the gravity and the fundamental principles governing this game. Bonus shares involve an increase in the capitalisation of the company and this can only be justified if there is a proportionate increase in the earning capacity of the company. Companies with uncertain earnings and highly fluctuating earnings create great risks for their shareholders by issuing bonus shares. Unless the corporate management has reasonable grounds for maintaining a steady level of dividend after the issue of bonus shares, the practice of issuing bonus shares encourages speculation.

A research study¹ on bonus shares reveals that higher bonus ratios have been found more often among companies paying high dividend rates and lower ratios more often among companies paying low dividend rates. The existing nominal dividend rate was not maintained after the bonus issue in the majority of cases when bonus ratio was 1 : 2 or over; however, when the bonus ratio was 1 : 4 or less, the majority of cases showed that the rate was maintained or even increased after the bonus issue. This analysis establishes that the probability of the nominal dividend rate being maintained after the bonus issue is inversely related to the bonus ratio; the lower this ratio, the greater is the probability that the nominal rate will not be cut after the issue. The probability of the nominal dividend rate being maintained after the bonus issue depended not only on the bonus ratio but also on the level of the pre-bonus dividend rate itself. In general, the higher the pre-bonus dividend rate, the less is the probability that the rate will be maintained after the bonus issue. As many as one-third of the companies covered by this research study, issuing bonus shares, did not

¹ L. C. Gupta, *Bonus Shares*, Macmillan Co. of India Ltd., New Delhi, 1973.

increase the total quantum of dividend on the enlarged capital following the bonus issue, a significant number of them even reducing the total dividend distribution. This shows that dividend increases do not follow bonus issues as is commonly believed. Shareholders can gain from a bonus issue only to the extent the bonus issue is associated with an increase in the quantum of future dividend. The declaration of a bonus issue, in itself, "creates no wealth since it produces no future stream of income".

Another interesting result of this research study is that the speculative price rise which occurred immediately after bonus announcement was frequently based not so much on a realistic appraisal of the fundamental factors governing profit and dividend as on rumours and psychology. The price rise at the end of one year from bonus announcement was less universal than the price rise in the period immediately after such announcement. The market seems to place exaggerated significance on bonus ratios. Whereas the immediate price rise was directly related to bonus ratios, the price changes after one year showed no such relationship. The dramatic price adjustment that took place from the level reached immediately after bonus announcement suggests that the immediate price rise was haphazard and not sufficiently discriminating, being carried too far in some cases and too little in others.

From the viewpoint of shareholders and investors, the major evil associated with bonus issues is not that the excessive increase in the capital resulting from bonus issue may bring down the rate of dividend to less than a reasonable minimum; the main problem is that the bonus issue leads to an undesirable speculation and unwarranted price fluctuations. The chief factor responsible for this is the uncertainty about how the bonus issue will affect the future dividend. This problem is not solved by laying down minimum standards of profitability or minimum residual reserves or by restricting the frequency of bonus issues. There has been a tendency to tighten administrative control of bonus issues but such tightening cannot solve the problem mentioned above. In fact, it often aggravates the problem of speculation by increasing the uncertainty arising from administrative rejection of bonus issue proposals submitted by the companies.

Here it is worth considering a suggestion to promote a policy of 'stock dividend' to be distributed as far as possible on a regular basis out of the currently retained profit instead of issuing bonus shares on infrequent and uncertain intervals out of past accumulations. Such an issue of bonus shares results in undesirable speculation. Moreover, corporate managements are under no obligation to ensure that reinvestment of retained profits will yield a sufficient return. The policy of an annual stock dividend paid simultaneously with the retention of profit will be advantageous over the present practice of capitalising past accumulations as it would minimise

undesirable speculation by artificially created uncertainty about future dividend. Companies may be permitted to distribute stock dividend up to a specific maximum limit, say, 5 per cent, provided the total cash dividend and the stock dividend is covered by the corporate earnings legally available for distribution. In other words, bonus issues upto 5 per cent would have to be exempted from the control of Controller of Capital Issues, provided they are covered by corporate retained earnings. The restrictions on the frequency of such stock dividends should not apply.

It is interesting to note that one of the guidelines issued by the Ministry of Finance on issue of bonus shares provides for the indication of management's intention regarding the rate of dividend to be declared in the year immediately after the bonus issue. We, however, feel that the management's declaration about their intention to maintain dividend hardly protects the interest of shareholders. Investors know that announcement of management's intention does not mean much since the actual declaration of dividend is dependent upon the earnings capacity of the company which cannot be guaranteed by any one.

Appendix

CONTROL OF CAPITAL ISSUES AND ISSUE OF BONUS SHARES

Issue of bonus shares is a normal practice adopted by companies to bring their paid-up capital in line with the value of their block. All companies, public and private, are required to obtain the approval of Controller of Capital Issues for issue of bonus shares. Applications for such approval are decided on the basis of guidelines issued by Government. The principal requirements are as under :

1. Bonus issues are permitted to be made out of share premium and free reserves built up out of genuine profits. Development Rebate Reserve is considered as free reserve, but reserves created by revaluation of fixed assets or without accrual of cash resources are not permitted to be capitalised.
2. At any one time, the total amount permitted to be capitalised for issue of bonus shares out of free reserves should not exceed the total amount of the paid-up equity capital of the company. The requirement may be relaxed on merits in the case of companies raising capital from Indian residents—(a) for financing approved schemes of expansion or diversification; or (b) for reducing the foreign shareholding as required under the Foreign Exchange Regulation Act, 1973, to ensure continuance of existing

business activities. In that event, a composite application should be submitted consisting of an application for issue of bonus shares and another for issue of shares to Indian residents for cash.

3. Residual reserves after the proposed capitalisation should be at least $33\frac{1}{3}\%$ of the increased paid-up capital. Development Rebate Reserve is included but Capital Redemption Reserve, if any, is excluded in computing the minimum residual reserve of $33\frac{1}{3}\%$. Capital reserves as a result of revaluation of assets or without accrual of cash resources are also excluded. All contingent liabilities which have a bearing on the net profits are required to be taken into account in the calculation of the minimum residual reserve of $33\frac{1}{3}\%$.
4. 30% of the average amount of pre-tax profits of the company in the previous three years should yield a return of at least 9% on the increased capital of the company.
5. Declaration of bonus issue in lieu of dividend is not permitted.
6. Bonus issues are not permitted unless partly paid-up shares, if any, are made fully paid-up.
7. A resolution approving the proposed capitalisation should be passed by the shareholders of the company before an application is made to the Controller of Capital Issues and the resolution should clearly indicate their decision on the management's intention regarding the rate of dividend payable on the increased capital of the company in the year immediately after the bonus issue is made.
8. Not more than two bonus issues are allowed over a period of five years.
9. Between the successive announcements of bonus issues by a company, there should be an interval of at least 24 months.
10. Application for issue of bonus shares should be made only after the expiry of a period of 12 months from (a) the date of enlistment of the last bonus, if the company is listed on a stock exchange, or (b) the completion of the despatch of share certificates.
11. In the case of composite proposals for issue of bonus and right shares, the bonus issue will be sanctioned first and then the right issue after some time lag.
12. In the case of companies with foreign shareholding where expansion is considered unlikely or where the profits are unduly

high, a reduction in the foreign shareholding is generally stipulated as a condition for approval of the bonus issue.

Free reserves representing accumulation of retained earnings constitute the most important criterion for issue of bonus shares. When fixed assets are excessively written down, depreciation written off in excess of the normal income-tax rates is allowed to be taken into account, but watering down of capital by capitalisation of notional reserves is in no event permitted. Capitalisation of capital reserves arising out of amalgamation or sale of assets is also not permitted. In the case of investment companies, capitalisation of reserves is not permitted.

It is an essential condition that the company making the bonus issue does not get over-capitalised in the process and that after the issue of bonus shares adequate reserves amounting to not less than $33\frac{1}{3}\%$ of the increased capital are left intact. The profitability test is an objective assessment and only operating profits are taken into account for computing the average profits earned by the company in the last three years.

Bonus issues before conversion of private companies into public companies are permitted, provided the interest of the participating public is protected to the same extent as the equity interest of the existing shareholders. The issue of preference shares as bonus shares is generally not favoured, but such an issue is allowed, provided the preference shares proposed to be issued are irredeemable and the ratio between the resultant aggregate preference share paid-up capital and the equity share paid-up capital does not exceed 1 : 3.

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Rights and Long-term Financing

A right is an option to buy a security at a specified price during a designated period. Indian companies are required, under Section 81 of the Companies Act, 1956, to offer additional issues of shares to existing holders of equity shares. This offer is known as "privileged subscription". The legal provision requiring the companies to offer new issues to holders of ordinary shares is referred to as the "pre-emptive" right. The concept of rights has grown out of the common law doctrine that a shareholder should have the opportunity to preserve his share in the earnings, ownership and surplus of a company. The pre-emptive right gives shareholders the first opportunity to purchase additional issues of the company's securities.

When a company makes a rights issue, it sends a "Letter of Offer" to existing holders of equity shares indicating the amount of new full shares or coupons to which they are entitled in proportion to their old shareholding. This 'letter of offer' is in the nature of share purchase warrant generally referred to as rights. These rights must be exercised within a relatively short given period, usually not more than 30 days, unless the date is extended by the company.

Rights play an important role in the financing of companies as may be seen from Table 1.

The amount of rights issues was more than that of initial issues of ordinary and preference shares in 1961-62 and 1962-63. Later on, due to stagnancy in the capital market, rights offerings went down, particularly in 1966-67, but there was a significant increase in rights issues in 1968-69 and 1969-70. Despite the widespread use of rights, their significance is often misunderstood by both the issuing companies and the shareholders. An attempt is made here to analyse the problems concerning the use of rights in financing.

Table 1

(In crores of Rs)

			Initial Share Issues	Rights
1961-62	..	..	27.9	35.9
1962-63	..	..	22.3	32.8
1963-64	..	..	48.2	18.0
1964-65	..	..	52.2	17.6
1965-66	..	..	39.5	17.0
1966-67	..	..	22.0	8.3
1967-68	..	..	41.6	17.9
1968-69	..	..	21.8	15.5
1969-70	..	..	15.0	14.6
1970-71	..	..	33.3	9.9
1971-72	..	..	32.3	9.2

When securities are offered first to existing shareholders, it is called a "privileged subscription". The procedure is fairly simple in the sense that after the issue has been approved by the company and the Controller of Capital Issues, notices are sent to shareholders indicating that all those who are shareholders as on a certain date may subscribe to additional shares in a given proportion. The company also has to indicate whether the new shares are being issued at par or premium. The issue price is kept much below the ruling market price in order to make provision for a possible fall. Suppose a company issues one new share for the 5 old shares at an issue price of Rs 120. The market price of the old share is assumed at Rs 150. The holder of 5 old shares will receive one right *for each of his shares*. If he sends his 5 rights together with Rs 120 he will get an additional share from the company. The shareholder does not have to exercise his rights. He can also sell the rights through his broker. However, he has to take the decision within a limited period, say, 30 days. After this period rights may expire and become valueless.

After the rights offering has been announced by a company, its ordinary shares sell cum-rights ("rights on" or "with rights"), i.e., a person buying or holding the shares during this period will be entitled to receive the rights when they are issued. To find out the value of rights during this period, we have to make certain calculations. The owner of 5 shares with a current market price of Rs 150 per share is entitled to subscribe to

one additional share for Rs 120. If he does so, his investment in 6 shares will total to Rs 870 ($5 \times 150 + 120$) or an average of Rs 145 per share ($\frac{870}{6}$). This very calculation can be made with the help of the following formula:

$$P = \frac{MN + S}{N + 1}$$

where: P = Theoretical market price ex-rights

M = Cum-rights market price

N = Number of old shares entitling to purchase one new share

S = Subscription price

$$P = \frac{150 \times 5 + 120}{5 + 1} = \frac{870}{6} = \text{Rs } 145.$$

As the holder of 5 rights is being asked to pay Rs 120 for the additional share with an estimated future market value of Rs 145, the total value of the 5 rights necessary to make this bargain purchase must be Rs 25 (Rs 145 - Rs 120). Consequently, the value of each right must be Rs 5. The formula for determining the value of one right when the market value of a share is taken with rights (cum-rights) is as follows:

$$R = \frac{M - S}{N + 1}$$

where: R = Value of one right

M = Cum-rights price

S = Subscription price

N = Number of old shares entitling to purchase one new share

$$R = \frac{150 - 120}{5 + 1} = \text{Rs } 5.$$

The value of one right, when market value of share is taken without rights (ex-rights), can be calculated by the following formula:

$$R = \frac{P - S}{N}$$

where: R = Value of one right

P = Market value ex-rights

S = Subscription price

N = Number of old shares entitling to one new share

$$R = \frac{145 - 120}{5} = \text{Rs } 5.$$

The holder of 5 shares would receive 5 rights and the value of one right is equal to Rs 5. In other words, he would be getting a total value of Rs 25. If he fails to exercise his rights or sell his rights, he will lose Rs 5 per share on the market value of his 5 shares.

After a certain specified date, purchasers of shares are no longer entitled to receive the rights and the shares are transacted at ex-rights price. When the share loses the rights its market price is expected to fall by the value of one right, i.e., from Rs 150 to Rs 145. At this time the rights are traded separately from stock. The purchaser of 5 rights could buy one share from the company for Rs 120. How much a person should pay for the rights? Our calculations show that not more than Rs 25 for the 5 rights, or Rs 5 for one right, should be paid. Together with this amount the total purchase price of one share would be Rs 145 (Rs 25 + Rs 120).

In actual practice, the rights may sell for more than Rs 5 because of speculative reasons. An increase of Rs 25 in the ex-rights market price of the share would increase the value of a right from Rs 5 to Rs 10 ($\frac{170-120}{5} = 10$). If the market price of the share falls below Rs 120 during the trading period, when the rights are outstanding, there would be much trouble for rights offering. No shareholder would like to pay Rs 120 per share that is available at a lower price in the market. This happened in the case of the rights issue of Hindustan Lever Ltd. Its shareholders were not at all interested in exercising their rights because of very low spread in P and S. Rights become a nuisance in such cases. The corporate management has to minimise the chances of such a happening by providing a reasonable difference in the issue price and the ruling market price.

Rights issue procedure. A number of procedures are involved in connection with rights offering. As the rights typically are exercised during a relatively short period, the timing aspect is of major significance. The following illustration of rights issue by Larsen & Toubro Ltd., in 1967, will throw light on the procedures.

An equity holder of 100 shares in Larsen & Toubro Ltd., got a "Letter of Offer" from the Company, mailed on 5th October, 1967. The Board of Directors of Larsen & Toubro had passed a resolution at their meeting held on August 11, 1967, resolving to issue 9,90,000 equity shares of Rs 10 each (hereinafter referred to as new equity shares) out of the unissued share capital of the Company. These new equity shares of Rs 10 each were offered at par to the holders of existing equity shares of the Company, whose names were on the Register of Members on 28th Septem-

ber, 1967 (hereinafter referred to as the relevant date), in the proportion of 3 new equity shares for every 8 existing equity shares standing in the names of such holders on the relevant date. The full amount of Rs 10 per share was payable on application. In case of holders of existing equity shares holding less than 8 such shares or a number in excess of multiple of 8 on the relevant date, coupon(s) equivalent to $1/8$ new equity share (in addition to the full new equity share to which they might be entitled) were issued.

The holders of equity shares whose names appeared on the Register of Members on 28th September, 1967 were informed by the Company through the "Letter of Offer" about the number of new equity shares and number of coupons, if any, to which they were entitled. If the equity shareholder wished to apply for all or any of the new shares to which he was entitled, he was required to fill in and sign the Application Form "A" (Form of Acceptance). If he wished to renounce all the new shares or any part of them, he was required to fill in and sign the Application Form "B" (Form of Renunciation). In that case his nominee, in whose favour he had renounced the new shares, had to fill in and send the form of request for allotment provided in Form B. In such a case of the request for allotment of shares by any person in whose favour the old shareholder of the Company had renounced his right, the Directors were entitled at their discretion to reject such an application.

The existing shareholders were at liberty to apply for new shares in addition to the new shares to which they were entitled, provided they had not renounced their rights in whole or in part. A transfer of a coupon, however, was not considered as renunciation. The shareholders desiring to apply for additional new shares were required to fill in and sign the Application Form "C" (Form for Additional Shares). Such applications for additional new shares had to be considered by the Directors on an equitable basis with reference to the equity shares already held by the applicants. Where this procedure was not practicable, applications for additional shares were to be disposed of by the Directors in a manner most beneficial to the Company.

The coupons, issued for fractional rights, were not deemed to be a share in the capital of the Company and did not confer any rights to dividend or otherwise except that the holder of 8 coupons was entitled to have allotted to him one equity share on his completing Form "D" (Share Application with Coupons). If the holder of 8 coupons presenting an application for an allotment of one new share was not a member of the Company, the Directors had a right to reject such an application without assigning any reasons. Coupons were negotiable by delivery.

The Company had indicated the name of its banker, State Bank of India, where all applications for new shares had to be forwarded to with the necessary sum. The last date on or before which the State Bank was required to accept applications for new shares was 11th November, 1967, unless the date was extended by the Company, in which case it had to be notified in the newspapers. If the application in the prescribed form along with requisite payment was not received by the State Bank of India on or before 11th November, 1967, or such extended date as might be determined by the Board, the offer had to be deemed as declined by the member and the Board was entitled to dispose of the shares in such a manner as they thought fit.

The new equity shares allotted in terms of this offer were to rank *pari passu* with the existing equity shares of the Company and were entitled to all dividends which might be declared in respect of the Company's accounting period commencing from 1st April, 1967 on par with the existing equity shares whether such dividends were declared from accumulated reserves or current profits. Certificates in respect of new shares allotted in terms of this offer were to be ready for delivery within 9 months from the date of the last allotment thereof.

It is necessary to make a note of the following points :

- (i) Date of mailing of "Letter of Offer" was October 5, 1967.
- (ii) Shareholders entitled to receive this Letter of Offer were those whose names appeared on the Register of Members on 28th September, 1967.
- (iii) The Board of Directors of the Company had passed the Resolution to make this rights issue on 11th August, 1967 (while passing this Resolution the Board of Directors did not announce the terms of issue which were informed to the investing public at a later date through stock exchange).
- (iv) The Company announced the closure of its books for the transfer of shares for a period of about two weeks to finalise the List of Members on a certain date. (This closure of books varies from two to three weeks).
- (v) The Company indicated the exact number of new shares and coupons to which the shareholders were entitled. The holder of 100 shares in our illustration was entitled to 37 new equity shares and 4 coupons in the proportion of 3 new equity shares for 8 existing shares.
- (vi) The new shares were issued at par in this case. (They are issued at premium particularly if the market price of a company's share is higher than its par value). Decision of issuing rights at par or at premium is affected by a number of considerations such as market price of share,

prevailing investment climate, proportion of rights issued to the old share capital, etc.

(vii) While sending the Letter of Offer, the Company provided certain alternatives to its shareholders : (a) Accept the offer by signing Application Form "A". (b) Renounce the offer in favour of someone by signing Application Form "B", i.e., selling the rights while retaining the ownership of the original shares. (c) Apply for additional shares by signing Application Form "C" which he was not entitled to but could get an opportunity on account of the non-exercising of rights by other shareholders. But this could be possible only if he had applied for all the new shares to which he was entitled. (d) Holder of coupons had either to sell them or purchase the requisite number of coupons which were exchangeable for one share. The shareholder in our illustration had four coupons. He had the option of either selling these coupons or purchasing four more coupons so that he could get one share from the Company by sending 8 coupons after signing application Form "D". In other words, he had to make an investment for purchasing 4 additional coupons and send share application money of Rs 10 along with these 8 coupons. Some companies give the facility to their shareholders for disposing of coupons by allotting shares represented by coupons to the directors of a company concerned who sell them at the ruling market price and distribute the proceeds to the shareholders in proportion to their number of coupons. This facility saves the shareholders from the botheration of finding suitable buyers for the coupons and also from brokerage.

Regulatory provisions affecting rights. The Controller of Capital Issues takes decisions on application for rights issue in concurrence with the company. Certain conditions are imposed on the company making an offer of rights. It may be required to offer to the shareholders an opportunity to apply for additional shares. Shareholders who renounce their rights in whole or part should not be entitled to apply for additional shares. If the rights shares are not fully taken up, the balance left over is required to be distributed equally among the applicants for additional shares with reference to the shares held by them in the company at the time of the issue. Subject to this requirement, preference is expected to be allowed to small shareholders as may be agreed to by the stock exchange on which the company's shares are listed. Any balance left after making allotment against applications for additional shares is required to be disposed of by the company either at the ruling market price or at the issue price consented to, whichever is higher. Where this procedure is not applicable for any reason, the company is required to deal with the additional shares in a manner previously approved by the Controller.

Under the stock exchange regulations, when a listed company makes a rights issue and mails the Letters of Offer to its shareholders, a specimen of the Letter of Offer should be immediately forwarded to the stock exchange and a formal request should be made in writing for admission of the Letters of Renunciation and coupons, if any, to official dealings on the stock exchange. Thereafter, as soon as the securities are allotted and the transfer books are open for registering transfers of the new shares, the listed company should make an application for admission of new securities to dealings on stock exchange.

Rights and financial policy. What is the significance of rights in formulating financing policies? By offering rights to existing shareholders a firm increases the likelihood of a favourable reception for the shares as they can thereby protect their pro-rata share in the earnings and surplus of the company. The cost of issuing a security by rights offering is lower than the cost of issue by public floatation. The management usually fixes the price for rights shares much below the prevailing market price. Such a rights offering is stock-split to a certain degree and may cause the market price of the shares to fall. Stock-splits also increase the number of shareholders in a company by bringing the price of a stock down to a more attractive trading level. Finally, the total effect of rights offering may be to stimulate the enthusiastic response from shareholders and the investment market as a whole, with the result that opportunities for financing become more attractive to the firm. This is really the case when bullish conditions exist in the capital market.

The risk that the rights would not be exercised depends upon a number of factors. The company takes a certain time before it can get return on the new investment and for some period the existing earnings may be spread over a large number of shares bringing down the value of EPS. This is going to happen definitely if the issue is large in relation to the amount of ordinary share capital already outstanding. It will depress the price of the shares on the market and the company may run the risk that the market price may fall below the subscription price. It is, therefore, incumbent on the part of the corporate management to see that the size of the offering in relation to existing shares is related to the willingness and ability of shareholders to acquire additional shares. An offering of one additional share for each 10 shares held is likely to move better than an offering of 5 additional shares for each 10 shares held. Rights issue may put much greater strain on an investor's wealth and loyalty if the company wants him to buy 6 additional shares instead of only one additional share.

The spread between the market price and the subscription price is of great importance in relation to the normal variations in the share price and the general market outlook. If the shares in a company are not extensively traded and fluctuate widely in price, the company should set the subscription price well below the current market price. In setting the spread, the corporate management should also consider the general strength of the market, since any general weakness or uncertainty is likely to affect all shares. The expected rate of earnings from the new capital made available by the rights offering is also of crucial importance. The more productive the new funds, the more likely the rights offering to be successful.

The financial executive must take into account the pre-offering pressure which usually develops on market price of the outstanding shares as soon as it becomes known that a rights offering is likely to be made. Further, during the subscription period itself downward pressure on the market price of outstanding shares may develop. Accordingly, it is prudent to set the subscription price of the new shares at a level significantly below the current market price.

During the period when rights are offered, i.e., ex-rights period, any person wishing to invest in the shares of the company has alternative ways to acquire them. He may purchase a share on the market at the current market price or he may purchase the proper number of rights and then subscribe at the subscription price. In the latter case, his total cost is the price of the rights plus the subscription price. But investors will not be attracted to the new issue unless the subscription price is less than the ruling market price. Consequently, the fixing of subscription price contains the problem of protecting likely market prices for the security during the life of the rights.

Thus, the corporate management has to keep the various considerations in view at the time of making rights issues: (a) pricing of issue; (b) price behaviour of rights; (c) underwriting of rights issue; (d) long-range effects on market price; (e) effects on earnings per share.

Pricing the rights issue. A company has to get the approval of the Controller of Capital Issues for the price at which it wants to make the rights issue. Where an existing company proposes to make a further issue of equity capital at a premium, the price of the rights issue should be based on what the market can bear so that profit from sale of rights is limited to a reasonable amount. Generally the price of the "right" is expected to be smaller than the premium element in the issue price so that the company may get the larger portion of the extra money for productive use.

The issue price is, therefore, fixed keeping in view the state of the capital market, the trend of share price in general and of the company's shares in particular, the ruling cum-right market price, and the ratio of proportion of the right issue to the existing equity capital of the company.

Among the other factors determining the premium are: the break-up value of the shares, the value of the shares on the basis of the company's profit-earning capacity, assessment of its future growth prospects, the dividend record, resources position of the company, and the extent of foreign participation in the company's capital. Where an established company with substantial reserves makes an offer for public subscription in order to create adequate public interest, a premium is allowed, provided it is not unreasonable in the context of the break-up value of the shares and profit-earning capacity of the company.

If a company wants to charge premium on the issue of rights it has to get approval from the Controller of Capital Issues. Correct pricing of rights issue has to make provision for shareholders' satisfaction and requirement of funds by the company. Success of rights issue is, to a great extent, dependent on the fixation of premium. If premium is fixed low, company has to issue a higher number of shares. In case it is very high, the value of rights becomes insignificant because $\frac{M-S}{N+1}$ would not leave a significant value for R. It may, in fact, be a nuisance. Hence, premium has to be low enough to absorb normal drops in the stock market price.

Price behaviour of rights. There is a slogan "sell early and buy late" during the rights trading period. It implies that the value of rights is high during the early period of rights and low during the late period. The explanation for this difference may be that shareholders reach their decisions slowly because they may not be aware of the value of rights during the early part of the trading period or they may be waiting to see how values will develop. At any rate they do not exercise their rights or sell them during early part of the period but wait until later. Therefore, in the later part of the trading period the supply of right is increased relative to the supply of rights in the early part of the period, and the price declines. One has to take this rule of thumb with a pinch of salt. The value of rights, in fact, is determined primarily by prospects of the individual company as judged by investors during the rights trading period. Where the company's outlook is strong, there will be a big increase in the rights value during the rights trading period.

Underwriting of rights issue. In view of the uncertain price behaviour and investors' interest in rights during the trading period, company may find the services of underwriters useful. Underwriters will be

supporting the market in one way or the other by keeping a watch on the market and exercising the rights prior to their expiry and offer the shares publicly at a price in line with the prevailing market price. Thus the underwriters may reduce the risks substantially and shareholders, who are unable to exercise their rights, have a better opportunity to get a price for them. Further, the possibility of a large block of unsubscribed shares is greatly reduced which demoralise the market after the expiry date for trading in the rights.

Rights are generally made with the presumption that a large proportion of the new shares will be subscribed to. In order to increase the chances that a large part of the issue is taken by the shareholders, a number of companies offer "over-subscription privilege", usually known as the "second bite".

Rights and dilution of market price. It is necessary to consider the question of dilution of market price arising in every case of rights issue because of two reasons : (i) the subscription price for the new share is lower than the market price of the existing issue, and (ii) the number of shares increases and this may bring down earnings per share as there is usually a time-lag between increase in earnings and increase in the number of shares. The value of one right in theory is equal to the anticipated dilution of the market value of one old share. If we ignore brokerage fees and income-tax considerations involved in the sale of rights, the shareholder who sells his rights theoretically receives enough cash from the sale so as to sustain no loss or gain in total market value of his holdings. By exercising or selling rights the old shareholder can prevent dilution in the market value of his holding. In evaluating rights to subscribe to issues of preference shares, the ex-rights formula $R = \frac{P-S}{N}$ is used in all instances since dilution is not involved.

It is often argued that rights issue depresses the price of the existing shares. To the extent that the issue price is lower than the market price, there will be a "stock-split effect" on the market price of the share. For instance, if the prevailing market price of a company's share (whose par value is Rs 100) is Rs 160 and the issue price is Rs 120, the new market price, other things remaining the same, will probably drop to Rs 140. But the question is whether, because of the rights offering, the actual new market price would be Rs 140 or lower or higher. The empirical studies on the movement in share prices during rights offering do not warrant any generalisation. What happens to the market price of the share ex-rights ? It depends upon the prospects of the issuing company. This point can be illustrated from the market price of Larsen & Toubro equity share. The

ex-rights price in October, 1967 was below Rs 14 but by December 1968 it had gone up beyond Rs 18.

Rights and earnings per share. Rights have to be used by the financial manager with caution as they have got a direct bearing on earnings per share. If the earnings on the addition to assets are greater than the cost of the incremental funds, the market value of share may receive an upward stimulus. The profitability of the incremental investment financed by the rights offering will increase the market value of the stocks, thereby affecting investor decisions to invest in the company through the rights or by purchasing the shares directly. Often there is a criticism by shareholders of the corporate policy of rights offering when there is an adverse effect on the dividend payout. The rights offering is considered successful if there is an improvement in the earnings, dividends and market price of the share.

Rights and small shareholders. Theoretically, no adverse effect should result from rights issue but in practice small shareholders usually suffer. Successive rights issue can significantly affect the upswitch of EPS growth trend. Small shareholders may stand to suffer from rights offering of the company because of their ignorance to take timely decision to exercise or renounce their rights. Rights may also lapse because of misunderstanding, procrastination and oversight on the part of the small shareholders. The inertia of small shareholders is responsible for the loss incurred by them as a result of rights issue. The shareholders have to be alert to exercise rights within the given time. There may be financial liability of small shareholders to invest in rights shares. Often it is difficult to match the increasing need for funds with the capacity of the small shareholders to provide additional funds by way of investment in rights issues. If small shareholders are forced to sell their shares, they may find the market unfavourable as share prices usually decline after the announcement of rights issue. Thus this pressure to find funds within a limited period to exercise rights may result in forced selling on the part of the small shareholders. This may lead to concentration of shares in a few hands. The small shareholders may not be having the capacity to save or to borrow at a rate at which the company requires additional funds for investment. Further, the cost, time and botheration involved in selling rights may not leave much margin and enthusiasm for the small shareholders to exercise their rights.

SUGGESTED READINGS

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CASE STUDIES

23.1. RIGHTS ISSUE OF VOLTAS LTD.

Voltas Ltd. offered 1,02,000 'further' ordinary shares of Rs 100 each at a premium of Rs 25 per share to the holders of ordinary shares whose names were on its Register of Members on the 14th August, 1965 in the ratio of 2 new ordinary shares to 5 existing ordinary shares. The "Letters of Offer" were mailed to such shareholders on 2nd September, 1965 and the last date for sending the application forms to the Company's bankers together with the requisite amount of subscription money was 16th October, 1965.

The decision to make this rights issue was taken by the Company in its Annual General Meeting on 27th February, 1964 but actual issue was made in September, 1965. There was a big time gap between the decision to make rights issue and the actual issue of rights. The market price of ordinary shares of Voltas varied from Rs 264 to Rs 288 in February, 1964 and came down to Rs 205 in early September, 1965 when Letters of Offer were mailed to shareholders. The ex-rights price quoted in October 1965 was Rs 183 or so.

By substituting figures from this illustration we get :

$$P = \frac{MN+S}{N+1} \quad \text{or} \quad \frac{205 \times 2.5 + 125}{2.5 + 1} = \text{Rs } 183$$

where : M=Cum-rights price of Rs 205

N=2.5 old shares entitled to receive one new share

S=Subscription price of Rs 100 plus Rs 25 per premium.

If a shareholder did not want to exercise his right to purchase, he could sell the "rights" in the market. The price for selling the right in the market could be calculated by the following formula :

$$R = \frac{P-S}{N} \quad \text{or} \quad \frac{183-125}{2.5} = \text{Rs } 23.2.$$

A person wishing to purchase 10 shares in Voltas Ltd., could acquire 25 rights and send them along with the subscription price of Rs 125 per share. Assuming that the rights were available in the market at Rs 23 per right, he would have to make an investment of Rs 575 (Rs 23×25) in purchasing rights and an amount of Rs 1,250 would be sent to the bankers of the Company as the subscription price for these 10 new shares. In all, his investment would be Rs 1,825. As seen earlier, ex-right market price was Rs 183. If that investor wanted to purchase from the market

10 shares directly, his investment would be Rs 1,830 (brokerage commission ignored). In case the investor was in a position to purchase rights, say, for Rs 18 per right, his investment would have been $\text{Rs } 18 \times 25 = \text{Rs } 450$ plus Rs 1,250 or Rs 1,700 and he would have gained provided the market price had remained the same at Rs 183. But this is not usually the case because market price also gets itself adjusted with the price of the rights.

23.2 RIGHTS ISSUE IN LARSEN & TOUBRO

The equity share capital of Rs 35 lakhs in Larsen & Toubro in 1955 increased to Rs 363 lakhs over a period of next 13 years (Table 1). Rights issues financed Rs 295 lakhs during this period. The Company made rights issue every year from 1956 to 1961 and almost alternate year afterwards, i.e., 1963, 1965 and 1967. The last rights issue was made in October, 1967 (accounting year 1967-68) at par in the ratio of 3 : 8. This rights issue was highest in amount being Rs 99 lakhs.

The Company charged premium on two of its rights issues—Rs 8 per share in 1963 and Rs 2 in 1965—as it was considered advisable in those years after taking into account the market price of its equity share. Due to growing earnings and a stable payout ratio the Company could prevent dilution not only in EPS but also in market price of its equity shares. Corporate financial policy of making rights issues helped in meeting its financial requirement and maximising the shareholders' satisfaction. The success of rights in Larsen & Toubro was partly due to making a good use of investment opportunities by employing funds brought in by rights issues.

23.3. RIGHTS ISSUE IN MAFATLAL FINE

In November 1963 Mafatlal Fine Spinning & Manufacturing Company decided to increase its issued equity capital from Rs 58 lakhs to Rs 87 lakhs by the issue of 29,000 new equity shares of face value of Rs 100 each. The issue was intended to provide additional finances required by the Company for the setting up of a new Chemical Plant. Out of the 29,000 new equity shares, 14,500 new equity shares of Rs 100 each were offered to the holders of the existing equity shares of the Company at a premium of Rs 275 per share in proportion of one new equity share for every four existing equity shares held by them on a specified date. The remaining 14,500 new equity shares of Rs 100 each were proposed to be offered to persons (whether or not members of the Company) at a premium of Rs 275 per share, i.e., the total issue price was Rs 375.

Table 1
Rights Issue in Larsen & Toubro

Year End- ing March	Equity Share Capital	Yearly incre- se in Share Capital	Proportion of Rights	At par or premium	EPS	DPS	Market Price	
							High	Low
	(in lakhs of Rs)	(in lakhs of Rs)						
1955	35.0	..	..	..	..	1.0	..	..
1956	40.0	5	1:7	Par	..	1.0	..	..
1957	45.0	5	1:8	„	1.21	1.0	20.0	15.3
1958	50.0	5	1:9	„	1.99	1.25	15.6	12.6
1959	60.0	10	1:5	„	1.79	1.25	21.6	14.1
1960	80.0	20	1:3	„	2.61	1.80	34.0	20.2
1961	110.0	30	3:8	„	2.12	1.80	56.5	29.3
1962	110.0	..	..	..	2.03	1.50	48.0	34.6
1963	165.0	55	1:2	Premium of Rs 8 per share	1.58	1.40	41.8	20.5
1964	165.0	..	..	..	2.50	1.50	26.3	20.5
1965	264.0	66	2:5	Premium of Rs	1.70	1.40	23.7	19.8
		33*		2 per share				
		99						
1966	264.0	..	..	..	2.29	1.50	21.1	17.1
1967	264.0	..	..	..	2.48	1.50	20.2	17.2
1968	363.0	99	3:8	Par	2.20	1.50	15.8**	13.3

*In March 1965, the Company issued 3,30,000 bonus equity shares in the proportion of 1:7.

**By December 1968, the price of equity share had increased to more than Rs 18.

The Controller of Capital Issues suggested to the Company that if it wanted to diversify its activities in unrelated fields and raise funds to finance the expansion programme, the Company had to offer 50% of the new capital to the public through a prospectus at a reasonable premium. This encroachment of the pre-emptive right of the shareholder was legally possible on account of an amendment to Section 81 of the Companies Act, 1956 incorporated in 1961. After this amendment, the Company could offer its shares to the outsiders provided it passed a Special Resolution and the scheme received approval of the Government. The Company had, therefore, passed a special resolution in November 1963. On January 17, 1964 the Company announced for the opening of subscription list for the public issue of 14,500 shares of Rs 100 each at a premium of Rs 275 per share from February 3 to 5, 1964. The issue was heavily over-subscribed because the ruling market price of the equity share of this Company before the public issue was nearly Rs 750 (three months earlier to this public issue it was Rs 845).

On February 6, 1964 the Company announced that the members registered on its books as on March 16, 1964 would get one right issue of Rs 100 for every 4 existing shares held at a premium of Rs 275 per share. Cum-rights deals could be entered into till February 29, 1964 because the books of the Company were announced to be closed from March 16 to April 4, 1964.

Points for consideration

1. The corporate management took the decision to make rights offering in order to raise the equity funds at a cost lower than that of raising funds by floatation of a new company for taking up the Chemical Project. The management preferred the alternative of making the rights offering considering the reputation of the company to sell its securities in an otherwise sluggish capital market. It might have been difficult to have good response for the new issue for raising equity capital.

2. The corporate management agreed to make 50% of the issue to public to make the ownership in the company widespread in order to change the character of the company from being a closely-held company for taxation purposes.

3. The Government insisted that a company diversifying in unrelated fields could be encouraged to raise equity funds for financing the diversification programme if it agreed to share the benefits of diversification with the public. But this objective of the Government policy in asking the Company to offer 50% of new capital to public was vague, considering the fact that the Company was allowed to charge an issue price

of Rs 375 as against the ruling market price of Rs 750. The difference between the issue price and market price was so wide that the public issue became highly speculative and was heavily over-subscribed. The real beneficiaries of this policy, in fact, were operators dealing in speculation. On the contrary, the genuine shareholders of the Company suffered a dilution in the market price of roughly Rs 150 because the share after the public issue was quoted at Rs 600 as against Rs 750 prior to public issue.

4. There was an encroachment of the pre-emptive right of the shareholders and particularly the shareholders who were not associated with management had to make sacrifice in the form of big dilution in the market price of their holdings. But this immediate dilution in market price for the shareholders could be taken care of by the increased profitability of the Company which was expected on account of its future diversified programme.

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Valuation of Shares

Valuation is not an exact science; it is sophisticated guess-work. Bonbright¹ opens his discussion on valuation with the following quotation from a decision by Justice Holmes : "A word is not a crystal, transparent and unchanged; it is the skin of a living thought, and may vary greatly in colour and content according to the circumstances and the time in which it is used".

The issue of valuation is spread over the whole area of financial management. One of the basic objectives of financial management is the maximisation of shareholders' interest. That maximisation of interest is related to the creation of share value and its growth over time, i.e., the change in the market price of the security. A review of the literature on the problem of valuation often gives a feeling of disappointment due to the lack of objective and definitive treatment of the subject which remains as one of the big challenges to financial practitioners and theorists. The concept of valuation is affected substantially by opinion, judgements and bargaining power of the parties concerned. It is very difficult to escape from the degree of subjectivity that is interwoven with virtually all methods of valuation.

Concept of going concern value

A fundamental consideration in the valuation process is of determining value of shares in a company as a going concern. In a going concern, we assess the value of an existing mixture of assets which provide a stream of income. But the sum of independent values of these assets is generally not equal to the value of the business unit as a whole under an effective organisation. In other words, there is an organisation which is the complex of relationships among the groups of individuals running the

¹ Bonbright, J. C., *The Valuation of Property*, p. 3.

company and between the company and its suppliers and customers. The existence of an organisation is the distinguishing characteristic of a going concern. The size and reliability of the annual inflow of income produced by the assets in combination with the organisational set-up determines the *economic value* of the going concern.

Our objective is not to have a discussion of the wide subject of 'valuation' but to have an introduction to some of the valuation approaches employed in security valuation, particularly the ordinary shares. The *need* for such an evaluation of securities arises usually in one of the following situations :

- (1) Investment appraisal of securities.
- (2) A family or closely held company desiring to place its shares on market.
- (3) Majority controlling interest in a company proposing to take over minority interest or *vice versa*.
- (4) Amalgamation or merger of companies taking either of these three forms : (i) a big company absorbing a small company, (ii) amalgamation of two companies of equal size, (iii) two companies forming a third company on merger.
- (5) Reorganisation of share capital resulting in the conversion of shares of one class into another.
- (6) Compensation on acquisition of shares.
- (7) Valuation under tax laws and other government regulations like wealth tax, estate duty, gift tax, income-tax, etc., where current market values have not been established or not considered appropriate to the specific purpose.

There are many methods of valuation but variations exist in the use of each method which lead to widely different results. Our discussion of various methods of valuation is not intended to suggest that all methods should be used and a final valuation figure be computed by averaging the results obtained under each method. Averages can hardly convert unsound figures into sound ones. Some methods of valuation may be used because they are easier but ease is a poor criterion for accuracy and fairness.

The methods of security valuation can be considered under three main heads : (1) those that are based on physical assets; (2) those that emphasise earning power; and (3) those that stress actual or imputed market prices. There is no single reliable method of determining the value of a company or its securities that can be applied to all situations. Often several methods or various combinations of methods are useful in a particular situation. It is worth noting that the purpose of the parti-

cular valuation and the point of view of the evaluator strongly influence the selection of approach to or method of valuation. As valuations are undertaken for a definite purpose and from a definite point of view, the choice of method and the final valuation will necessarily reflect that purpose and point of view. For instance, a person who is considering the purchase of the majority controlling interest in an old textile mill with intentions of liquidating the company for the value of its land and scrap value of its other assets would obviously approach the problem of placing a value on the shares differently than would a person who plans to acquire the shares for the income it may produce from continued operation.

Asset approaches to valuation

For valuation of securities attention is often focussed on value of assets. The concepts of value based on asset approaches are: (1) book value or break-up value; (2) realisable value or liquidation value; (3) replacement value or reproduction value.

Book or break-up value. Book value is determined by the asset values shown on the company's balance sheet. The excess of assets over debts represents the net worth of the business in the accounting terminology and provides the base for the calculation of book value. If a company has got outstanding preference shares, a value for these shares is deducted to determine the net worth applicable to ordinary shares. The net worth available to ordinary shares divided by the number of outstanding ordinary shares gives book value per share. There are some refinements of this method. Some analysts prefer to exclude from net worth intangible assets such as preliminary and promotion expenses, patents, discount on the issue of securities, goodwill, etc. Other analysts add to net worth those results which are considered essentially to be the part of surplus like reserve for development rebate. Some prefer goodwill (when it is not shown on the books) if the earnings have been large enough to support the contention that business has a going concern value in excess of the stated tangible assets. Even considering the problem faced to provide for these refinements, book values are relatively determined with ease and usually give an impression of being exact and clear-cut. They were widely accepted in the past as standards of security value.

One should not ignore the weaknesses of this method of valuation. First, figures for book value are influenced by the accounting practices and policies of a company. There are wide variations between companies in accounting for provision of depreciation and valuation of inventory. Secondly, there is lack of standardisation of accounting practices in the treatment of intangibles like goodwill and patents. Thirdly, analysts face the difficult job of reconstructing reported figures in valuing the security of

one company against that of another in order to get them on comparable basis. Fourthly, a concern following financial accounting practices will arrive at the value by reference to conventions rather than sheer logic of value. For example, inventories are generally carried at cost or market price whichever is lower. Similarly, fixed assets are typically carried at historical cost less depreciation rather than at current values. Finally, book value approach does not give proper consideration to the earning power of the assets which may be the real test of their worth.

Book values, however, are most useful in appraising companies whose assets are largely liquid and subject to fairly accurate accounting values such as investment companies, banks, insurance companies, financial corporations, etc. But even in such cases, book values used alone can hardly be the reliable standards of value.

Realisable or liquidation value. If we are considering the value of individual assets which can be had by selling them, such value is known as the realisable or *liquidation value*. The liquidation value can be estimated for the company as a whole which means the estimated net amounts that will be received by sale of assets less any liabilities. The liquidation value of a company is usually (but not necessarily) less than its economic value as a going concern. It has significance in bargaining on valuation because it represents a minimum price. A company should not be sold as a unit for less than its liquidation value. When earnings in a company are non-existent, liquidation value may become significant.

Replacement of reproduction value. To avoid the problem of changing price levels, it is often suggested that assets should be valued on the basis of replacement cost rather than historical cost. Replacement cost is estimated by competent engineering authorities by breaking down property into its various component units for purposes of detailed examination. Such a valuation has much significance as expert opinion, but the conclusions are not universally accepted. There is always the danger of variance of different appraisers, and the appraisal may not necessarily be substantiated by the earnings record of the properties. The replacement value, without deduction of depreciation reserves, represents about the maximum a person may pay for assets. This value is significant in case of public utilities where it sometimes becomes a factor in the determination of tariff rates by government. It is rarely used as a single standard of value.

There are several problems in using this approach. *First*, it is often difficult to estimate cost of replacement. Generally we will not try to estimate costs of replacing identical equipment as it may be prohibitively expensive if the equipment is no longer manufactured. Instead, we estimate the cost of manufacture to perform similar services. *Secondly*, there remains the problem of determining depreciation on the replacement cost.

Thirdly, while costs of replacing physical assets can be calculated by painstaking appraisal, the cost of duplicating the business organisation, its experience, know-how, and reputation—apart from the physical assets—is most difficult to determine. *Finally*, estimates of replacement cost do not measure the value of assets in use. Two companies may have an equipment with an identical replacement cost (less depreciation), yet, due to favourable business relationship with suppliers and customers, one company may be able to make far more effective use of its equipments than the other.

Often, in evaluating a company or its shares a combination of capitalised earnings approach and assets approach is considered appropriate. The appraiser may calculate the value of the shares on the basis of the earning power of the business on the assumption that the company owns certain extra assets which may be sold or distributed to shareholders without adversely affecting the earning capacity of the company. Such redundant assets may, therefore, be valued without reference to the earning power of the business and their net realisation value is added to the capital earnings value in the final determination of the value of the shares. This is termed as *redundant assets method*. On the other hand, when additional investment by the purchaser is required in order to realise the estimated earnings power, such additional investment should properly be subtracted from the value arrived at by capitalising future earnings.

Asset approaches to valuation usually come under the category of unrealistic measure of value except for the limited purpose of law and accounting. In practice, they persist as important guides to the determination and negotiation of value because they appear to be a figure independently derived and precisely studied. Another reason for the appeal of book value is that it represents the commitment to the investors who remain under the notion that they can recover this value at the time of the liquidation of the company.

Capitalisation of earnings approach

The capitalised earnings approach for the valuation of ordinary shares is based on the philosophy that the current value of the property depends on the income which can be had over the years. This approach is based on the feeling that it is the earning power that provides income to the shareholder, and it is income that he values rather than the physical assets. The basic validity of this approach is rarely challenged. However, problems do arise in the application of this approach to actual situations. There are three basic steps involved in the method of valuation: (1) determination of earnings, (2) determination of rate of capitalisation, (3) capitalising the value of earnings.

Determination of earnings. In determining future earning power one has to consider the corporate earnings' past record and the first step is to get it as straight as possible. There are difficulties in getting reliable data and the person making the valuation may not have access to all the data he would like. Difficulty is also created due to the varied character of accounting practices which may require a number of adjustments for converting earnings data to a basis appropriate for the comparison. One cannot ignore the truth that there is an opportunity to conceal and to distort the data and there is also temptation to do so. An analyst has also to keep in mind the fact that the profits of a particular company are influenced by movements of the economy as a whole, by conditions within a particular industry, and by the effectiveness of the individual company within the industry.

The analyst may not be having the time and resources to undertake a complete balancing of all the factors that have a bearing on the future profits of a particular company. He usually works on the basis of earnings reported by the company for recent years, adjusting the figures upward or downward in accordance with his appraisal of the total effect of factors he thinks will affect the working of the company. It is a difficult attempt to have a precise forecast of annual variations for many years into the future. What is commonly done is to forecast smooth trends—level, upward or downward. Usually the forecast is simply on average of earnings over the years. If the earnings are reasonably stable or fluctuating round a more or less horizontal trend line, the meaning of an annual earnings rate is fairly clear. On the contrary, if there is an upward or downward trend, the problem arises to identify the extent to which the rate of increase or decrease in the earnings level is inherent in the particular business or is it simply a function of the general industry environment or of the efforts of management. The prospect of rising earnings due to product, market position, or management team is an important consideration to be kept in view for determining the value.

In practice, an estimate of future earnings is prepared over an arbitrary time horizon which would be a period short enough to justify reasonable degree of confidence in the expected earnings. The significant consideration is selection of a period of time which represents a normal picture of both the good and bad years in the company's recent history. It should be a period covering the completion of the business cycle so that poor years are averaged with the good. The period of business cycle (prosperity, recession, crisis, recovery) would vary from industry to industry.

Often a refinement (illustrated below) is made in terms of a greater weight to the earnings of recent years.

Weighted Average of Earnings

Year	Net Profits after depreciation, interest, taxes and preference dividend	Weights assigned	Product (2 × 3)
(1)	(2)	(3)	(4)
			Rs.
1963	2,00,000	1	2,00,000
1964	1,80,000	2	3,60,000
1965	2,10,000	3	6,30,000
1966	2,20,000	4	8,80,000
1967	2,25,000	5	11,25,000
	<u>10,35,000</u>	<u>15</u>	<u>31,95,000</u>

$$\text{Weighted Average Annual Earnings} = \frac{31,95,000}{15} = 2,13,000$$

(Simple average is Rs 2,07,000).

This mechanical weighting system may be found too artificial to produce desirable results but it suggests the nature of the approach.

The next step is to adjust past earnings for any variation which cannot be expected to persist in the future. An appropriate adjustment should also be made for any unusual items of income or expense.

Thus, in assessing future earning power one has to pay due attention to the record of the earnings of the company in past, nature and extent of competition in the industry, treatment of research and development expenditures, the general economic conditions and government policies of trade, tariff, taxation, money and banking, etc. In fact, one has to determine *maintainable profits* for future. There are three approaches to the determination of maintainable profits: (i) A simple average may be calculated in case of established industry with no growth prospects. (ii) Weighted average has to be calculated in case of established industry with no growth prospects. A greater weight has to be given to the recent experience. (iii) Projected average has to be calculated in case of industries having high growth potential.

Rate of capitalisation. After determining the annual earnings rate (in fact there should be a range of earnings rates) for the company as a whole or per share, the next step is to apply a capitalisation rate to arrive

at the prospective investment value. The capitalisation rate is no more than an earnings-price ratio, i.e., it is the ratio of earnings to price. It follows that the capitalisation rate is a reciprocal of the price-earnings ratio of 12.5 times $\left(\frac{100}{8}=12.5\right)$ and a capitalisation rate of 5% is the same as the price-earnings ratio of 20 times $\left(\frac{100}{5}=20\right)$. The determination of appropriate rate of capitalisation is the most difficult and subjective aspect of the problem. In general, the selection of this rate of capitalisation is affected by the following considerations: (1) prevailing interest rates, (2) risks involved in the industry, (3) time required for reaching capacity production in the company, (4) nature, magnitude and potentiality of competition. The relative certainty of estimated earnings affects the rate of capitalisation. Where uncertainty is great or where the risk is high, the purchaser will like to have a high rate of return. For instance, in case of a company with a highly competitive item of uncertain demand, the purchaser of shares may insist on a price which will yield a return of 25% on his investment, i.e., he would capitalise estimated earnings of Rs 4 a share at 25% and reach a valuation of Rs 16 for one share. There may be another company where the risks are considered to be very low due to stable and steady earnings at the level of Rs 4 per share. So the purchaser may be willing to accept a capitalisation rate as low as 8% in which case he would value Rs 4 earnings per share at Rs 50 or 12.5 times earnings per share.

The high risk situation may be adjusted either by adjusting the rate of capitalisation or earnings per share. If an allowance for the risk factor has been made through a conservative estimate of earnings per share, there should not be duplicate allowance for the uncertainty in the capitalisation rate.

The factors that go to determine the risk in a particular situation are highly complicated and weighing of them is a matter of judgement. Therefore, the selection of capitalisation rate appropriate to risk is usually subjective. It is worth noting that a small change in the rate of capitalisation makes a substantial change in the final valuation figures. In practice, analysts often classify industries by groups and develop rules of thumb governing appropriate rates of capitalisation though this approach may not be acceptable on theoretical grounds.

The capitalisation rate, it may be noted, is affected by the variability of income. If a business is susceptible to recession and its earnings vary widely, this would imply a big risk. This can be taken care of by having a lower price-earnings multiplier. The more speculative the business the higher the capitalisation rate, and *vice versa*. The extent to which earn-

ings may be affected by the leverage factor in the capital structure should also be taken into account.

Price-earnings ratios based on *normalized* earnings often are more meaningful for evaluation purposes than P/E ratios based on *actual* earnings, though it is easier to work with actual earnings because definition of normalized earnings involves a large element of subjective judgment.¹

Capitalisation of earnings. The process of putting a valuation on the estimated earnings is known as the capitalisation of earnings. As seen earlier, the process of estimating future earnings is an inexact one. Similarly, the selection of an appropriate rate of capitalisation is mainly subjective. Some adjustments in the capitalised value of income become necessary. If some of the assets purchased have not contributed to the operating income, they can be sold without affecting the normal operating income. There may be excessive amounts of cash, inventories and other assets on hand. The fair market value of these assets (net after any taxes incurred by their sales) should be added to the capitalised value of earnings. On the other hand, it may be necessary to put out additional sums to operate the assets effectively. Future earnings of a small manufacturing concern may depend upon the purchase of additional machinery or patent rights. Such payments made in order to obtain the estimated normal net income should be subtracted from the value of assets calculated by capitalisation of income.

For capitalising the earnings or maintainable profits at the capitalisation rate, the following are the usual treatments :

- Treatment 1 : Capitalise the maintainable profits at the capitalisation rate related to that industry or business.
- Treatment 2 : Maintainable profits are arrived at after deducting taxes, preference dividend, and normal plough back. After these deductions, the remaining profits are capitalised at the estimated capitalisation rate.
- Treatment 3 : If the company has surplus funds invested in outside shares or securities or redundant assets not helping in the normal earnings capacity of the company, in that case additions will be made to the capitalised value of earnings for the value of such redundant investments and assets.
- Treatment 4 : If a company has a highly geared financial structure, i.e., high debt to equity ratio, the plough back is suitably increased and the rate for capitalising the earnings also requires suitable adjustments. Financial leverage may add to

¹ cf. Cohen and Zinbarg, *Investment Analysis and Portfolio Investment*, 1967, p. 240.

earnings per share but it also increases volatility of those earnings.

Does corporate dividend policy affect the value of shares ? Numerous factors influence the dividend policy; and it is extremely difficult to estimate the percentage of earnings that will actually be disbursed as dividends in the future. While comparing the value of shares in the companies operating under similar conditions and having same opportunities for growth and the same earning power, analysts assign a higher price to the shares of the company which pays larger dividends. There is a trend of opinion at the present time to give greater weight to the dividend factor.

Market price

Advocates of this approach argue that actual market prices are appraisals of knowledgeable buyers and sellers who are willing to support their opinions with cash. Hence, the prices at which transactions take place are practically expressions of value which should be preferred to theoretical views or valuation. Market value of the share is in the nature of "bloodless verdict of the market place". Supporters of market price argue that it is determined by investors' valuation of expected future earnings and thus reflects the value of the security. Moreover, market price is a definite measure that can readily be applied to a particular situation and it minimises the subjectivity of other approaches in favour of a known yardstick of value.

Market value is a highly fluctuating quantity. In fact, the fluctuation may be so violent and extreme that one may question the validity of using the market price of the securities as a basis for exchange. However, in spite of this shortcoming it is given much consideration, primarily due to its wide acceptance. The public usually believes that a share is worth its market price and any attempt to change this recognised label of value would face serious investor resistance. Granting the expediency of market prices as a means of determining exchange ratios, there is need to appreciate the influence of speculative activity. Insiders often manipulate prices to their own advantage. Moreover, a rumour of impending merger may serve to increase greatly the activity in the trading of the shares involved and be the cause of important changes in the relative market price ratios.

The problems in using market price as a standard of value can be analysed as follows. *First*, market quotations are not available for a large number of companies whose shares are not listed on the stock exchange. *Secondly*, even for those companies whose shares are listed there may not be an active trading. In other words, "thin" market exists in such secu-

rities. Listing in itself does not create an active group of buyers and sellers and many listed securities are traded on an infrequent basis. Many securities on the cash list belong to this category. *Thirdly*, the release of a relatively small number of shares on such a thin market may be enough to depress market prices substantially. Recorded sales price may be based on the sale of a few shares. Is it fair to apply the price set on a small scale to a big bulk of shares? *Fourthly*, the market price for a particular share on a given date may be influenced by artificial means like cornering of shares, bull raids, etc. *Fifthly*, sales of shares in a closely held company may not reflect fair market price. These sales may be forced sales or sales between the members of the same family. *Finally*, it is difficult to tell whether movements in the price of a share in response to rumours cause the price to move upwards or away from its economic value. Often market itself tends to exaggerate major upward and downward movements in stock prices.

To meet some of the objections noted above, the theory of *fair market value* has been developed. Fair market value is based on the assumption that there are willing buyers and willing sellers actually in the market, each well-informed and prepared to act in an entirely rational manner. This concept meets to a greater extent most of the objections against market price. Yet it raises a need for other standards of valuation than market quotations and suggests the verification of the results with the value calculated under capitalised earnings approach. Market prices are widely used by the courts and tax authorities because of their easy application and in any valuation of shares due attention is given to the market quotations, if they are available.

'Nuisance' value

The approaches to valuation, discussed above, intend to replace the element of personal opinion with an objective test. They can only be partially successful in this attempt because some element of individual judgement always remains. The foregoing discussion of valuation processes should not minimize the influence of bargaining or "horse-trading" in the fixing of exchange prices. Valuation is an inexact process by which evaluators reach in their own minds an approximate area of value. Within this area, the final price is developed by the bargaining process. It is worth noting that in various valuation situations, the final determination of value is a part of a bargaining process resulting in a compromise value. In this list of various approaches to valuation one can see the relevance of another approach, i.e., nuisance value, which essentially emphasises the aspect of bargaining capacity of one party against another. It does not mean that the various approaches to valuation are of no value in practical

situations. These approaches play a significant role in laying down rational limits within which the negotiated value usually falls. Each party to the negotiation makes an attempt to champion the method of valuation most favourable to its interests. A negotiated price does not necessarily imply one based on non-rational considerations. At the same time, it cannot be interpreted to mean that capitalised earnings value will govern every valuation decision. Each case is considered on its own merits.

In a recent study,¹ an attempt has been made to discover the factors which were important determinants of relative common equity value in a selected group of 50 mergers in the United States. The methods of valuation used in this study were as follows: (a) assets valuation method, (b) capitalised income method, (c) hybrid method, (d) market price method, and (e) cash dividend method. The influence of market price was found dominant throughout the analysis as was indicated by the value for this factor of .95 for the coefficient of correlation and 1.0 for the regression coefficient. The multiple correlation for this factor was .98. The influence of cash dividend was indicated to be next in importance to market price. The difference in the importance of cash dividends could be explained by the fact that they influenced the market price. But aside from this, cash dividends were found to exert little or no independent influence in the exchange ratio formulations. The importance of asset valuation, as measured by the book value ratio, was indicated to be the least influential.

¹ *Common Valuation in Industrial Mergers*, Dellenbarger, L. E., University of Florida Press, Gainesville, 1966, Chap. V.

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Case Studies on Valuation*

1. TATA IRON & STEEL COMPANY LTD.

(Valuation for Conversion Ratio)

In 1951, the Directors of Tata Iron & Steel Company Ltd., faced with the problem of converting the deferred shares into ordinary shares, referred it to Mr. M. C. Setalvad, then Attorney General of India, who was appointed as a Mediator. When the Company had approached the Government of India for a loan to meet the cost of replacement and expansion of its plant in 1950, the Government indicated that they would not be prepared to assist the Company unless the conversion of deferred shares into ordinary shares was completed. The reference of this problem to Mr. Setalvad was in very wide terms with a view to enabling him to take into consideration all relevant factors including the present and future earning capacity of the Company, the value of its plant and generally any other factor which could have a bearing on the valuation of the deferred shares in terms of the ordinary shares. He was entitled to appoint technical experts to advise him on engineering questions which might arise for consideration in the course of enquiry and chartered accountants to assist him in enquiry and valuation.

The deferred and ordinary shareholders were given full opportunity to present their points of view before him and they could engage lawyers to present their case at the cost of the Company. The directors of

*The Case Studies in this chapter have been given in an abridged form in order to highlight the different considerations affecting valuation of shares. Those who are interested in using these Case Studies for discussion in management development programmes and for management education programmes, it is suggested that they should purchase the complete cases from the Case Unit, Indian Institute of Management, Vastrapur, Ahmedabad-15. The author wishes to acknowledge the contribution of Mr. C. C. Chokshi, Chartered Accountant, Bombay, in the preparation of Case Studies 4 to 6.

the Company had requested the shareholders to utilise this opportunity for a fair and impartial enquiry and to make the best use of it in putting forward their respective viewpoints on the ratio of conversion. Attention of the shareholders had also been drawn by the management that in case the voluntary scheme of conversion failed, they would have no other course open to them but to report to the Government that the shareholders had rejected the scheme and to leave it to the Government action for bringing about a satisfactory conversion. Top persons from legal and accounting professions were engaged to present the viewpoints of both the classes of shares.

Deferred shareholders' approach. The Committee of Action of Deferred Shareholders drew the attention of the Mediator to certain clauses of the Company's Memorandum of Association which provided that after paying dividend at 8% on ordinary shares, dividend at 25% was payable on deferred shares and any surplus profits were disburseable to ordinary and deferred shareholders in proportion of 50 : 50. This clause meant a tremendously larger share for deferred shareholders because the number of such shares was 48,750 of Rs 50 each amounting to paid-up deferred share capital of Rs 14,62,500 as against 3,50,000 ordinary shares of Rs 75 each amounting to the total paid-up ordinary share capital of Rs 2,62,50,000.

Another clause of the Company's Memorandum provided that any surplus assets in the winding up, after paying off capital paid-up on the ordinary shares and the deferred shares, should be divided in the proportion of 40 : 60. This provision gave much greater proportionate share in the surplus assets of the Company to the deferred shareholders. Deferred shareholders, therefore, argued that for the purposes of conversion, the valuation of shares should be on the basis of their share in the winding-up of the Company.

Deferred shareholders mentioned the basis of the proportionate amount of dividends distributed by the Company to the ordinary and deferred shareholders in the previous years. They stated that for an additional rupee of more dividend payable on ordinary share of Rs 75 each, roughly Rs 7.15 more dividend was payable on each deferred share of Rs 30. In other words, an increase of Re 1 on an ordinary share of Rs 75 meant an increase of 1.33% dividend thereon whereas a corresponding increase of Rs 7.15 per deferred share of Rs 30 meant an increase of about 24% dividend. Thus the ratio of conversion on the basis of dividend should be 1 : 18.

Dealing with the subject from the point of view of market value of shares, the Committee of the deferred shareholders reported that market price was subject to variations affecting the validity of conversion ratio on

the basis of the market price. It cited instances that in August 1946, the value of ordinary share had increased to Rs 638 per share as against that of deferred shares to Rs 3,617. But in August 1947, the market price of ordinary shares crashed down to Rs 374 and of deferred shares to Rs 1,880. Further, in the year 1930, the maximum price of ordinary share was Rs 55 and that of deferred shares was Rs 327 so that the ratio thereof was 1 : 5.9 and in the same year the minimum price of the ordinary share was Rs 21 whereas the minimum price of deferred share was Rs 241 so that the ratio thereof was 1 : 11.3. It was, therefore, pointed out that how could the ratios of the respective market values of the two classes of shares be a correct guide to the determination of the conversion ratio.

Discussing the valuation made by experts in respect of tangible assets of the Company, the Committee mentioned that the appraisers had not taken into account the value of land in the town, the research laboratory, the valuation of the ore mines and collieries owned by the Company and its goodwill. After making adjustment for these assets, the Committee stated that the proportion in which ordinary and deferred shares would participate in the surplus assets of the Company came to 1 : 10.

Regarding the replacement value of the fixed assets of the Company, it was argued that this value was hypothetical and based on many assumptions. Regarding the break-up value, the Committee thought that it was very much low and unrealistic. The Committee also drew the attention of the Mediator to the large differences between the estimates of two experts appointed for valuation of assets. It emphasised that the fixed assets had considerably appreciated in value and on conversion of deferred shares into ordinary shares a substantial benefit of this appreciation should accrue to the ordinary shareholders.

The Committee argued that the deferred shareholders had all along taken the greatest risk in the investment of their capital in the Company. At certain stages there was every possibility of the Company being wound-up and the whole of the capital sunk by them in it being lost. Moreover, most of the deferred shareholders were not the original holders. They had acquired the shares on high market prices prevailing from time to time.

Attention was drawn to a provision in the Articles of Association that the rights and privileges of the deferred shareholders in the assets of the Company could not in any way be modified except by a Special Resolution passed at a separate meeting of the deferred shareholders.

The Committee also quoted from Adamson's book, *Valuation of Company Shares and Business*, that stock exchange quotations were not related directly to the value of a company's assets or to the amount of its profits,

and secondly, these quotations, no matter what dates might be chosen for reference, could not form a fair and equitable or rational basis for compensation.

Ordinary shareholders' approach. The Committee of Ordinary Shareholders argued that the deferred shares did not have enough votes to carry the Company into liquidation. Hence, the question did not arise of applying the approach of distributing surplus at the time of winding up.

The Committee favoured a just and fair ratio of conversion taking into account the following factors: (1) dividend declared by the Company; (2) results shown by the stock exchange quotations; (3) earning capacity of the Company with due regard to controls imposed on the selling price and profits of the Company; (4) rising cost of production; and (5) limitation of return to 8% on gross block by the Tariff Board under the scheme of fixation of fair retention prices. The Committee, therefore, recommended that the ratio for conversion should be 1 : 5.

The Committee observed that for the 44 years of the Company's existence upto 1950-51, the ratio of dividends declared on ordinary and deferred shares worked out to 1 : 5.1. Statistics of stock exchange quotations from 1948 onwards indicated that the ratios of market prices varied from 1 : 3.9 to 1 : 5.8. The Committee insisted that the stock exchange quotations were the best indication and particularly so when the experience was spread over such a long period comprising lean, normal and good times.

The Committee challenged the report of the experts on replacement valuation. It mentioned that this replacement value was inapplicable to a going concern. The uncertainties and arbitrariness in the assumptions made the method inadvisable. The Committee referred to the observations of J. C. Bonbright (*Valuation of Property*, 1937, p. 238) that "the mere fact that the physical assets of a rail-road company or of a steel company may actually have cost many million dollars to construct not only fails to determine the present value of the company but has utterly no influence on the value unless for some indirect way it may affect net earnings. And precisely the same statement applies to estimated replacement cost of the physical assets, no less than to historical cost. It will benefit the owner of an enterprise nothing to possess a company with costly assets. What the owner wants is profitability and not expensiveness." The Committee also referred to *Economic and Accountancy* by Professor Canning that "costs of reproduction now less an allowance for depreciation may be a good working rule in damage suits; it is absurd as a sole rule of going concern valuation."

The Committee stated that the proper method of valuing a business as a going concern was its earning capacity. The method required profit

valuation and the dominant consideration was the estimated future earnings based on past earnings adjusted reasonably to future contingencies affecting future earning capacity. On the whole, the shares of the Company were valued according to the amount of its distributed profits and the prospect of future distributable profits. The main idea in scrutinising assets was to ascertain the reliability of past profit and loss account as a guide to future and, apart from this, book value of fixed assets was generally unimportant.

The Committee mentioned that so long as the Company had to work under a regime of controls, it would be difficult to create enduring conditions for payment of high dividends over a period of years. A reasonable amount would also have to be set aside to reserves, especially when large funds were required for modernisation of plant, industrial housing, etc.

The Committee rejected the idea that the correct approach to the problem of conversion was based on an estimated valuation of separate assets of the Company. Replacement values or break-up values were out of place in a conversion scheme where there was no break-up of the Company.

The Committee suggested that the correct approach to the problem of conversion was the earning capacity and in its computation the reserves constituted a first charge as they helped the Company in producing and maintaining profits. The Committee criticised the persistent approach of deferred shareholders based on assets valuation. It also rejected the plea that the percentage of dividends to paid-up capital could help in proper valuation. The buyer paid regard to the amount of dividend and not to the paid-up value. The value of a share to the buyer depended on the amount of dividends he received.

Referring to ratio of conversion based on market prices, the Committee pointed out that the ratio in 1930 was 1 : 11.7 and that in 1931 it was 1 : 11.1. But these were the years of violent or abnormal fluctuations, due to 'cornering' activities of certain individuals. These very persons, when failed to succeed in their activities, lost patience and unloaded their shares subsequently with the result that values crashed so that the ratio came down to 1 : 3.8.

Referring to goodwill, the Committee stated that it had no separate value. The advantages, if any, of goodwill in a case like this were reflected in the earnings and produced nothing separately.

Maintainable profits as basis of valuation. The Mediator suggested the approach of capitalised value of maintainable profits as the basis of valuation which was finally agreed to by both the classes of the shareholders.

However, there was a difference of opinion on the rate of capitalisation. The rate of capitalisation of 6% on ordinary shares of the Company was considered reasonable by the ordinary shareholders but, in respect of deferred shares, the Committee of ordinary shareholders wanted that the yield should be at least 1 to 2% more than the yield on ordinary shares. On the other hand, the Committee of deferred shareholders thought that the correct rate of capitalisation should be 5% instead of 7% as suggested by the Committee of ordinary shareholders.

In May 1953, the Mediator, expressing his opinion, mentioned that in substance, the problem was of a fair valuation of the deferred shares of a going concern in terms of the ordinary shares of the same concern. In such a valuation no question would seem to arise of winding up or sale values. The essential factors to be considered in arriving at the intrinsic or real value of shares were: (i) the earning capacity of the Company; and (ii) the safety of capital or assets backing. Of these two factors the paramount factor was the potential earning power of the Company.

Though the market quotations for shares were not necessarily indicative of their true worth, they certainly had to be taken as representing the market prices at a particular time because these prices were fixed in a free and open market by dealing between buyers and sellers. Thus, though market value was not a conclusive test for real value, where there was a free market it was cogent evidence of real value. Further, the dividends paid over a number of years would also in some measure be indicative of the real or intrinsic value of the shares.

The true approach would, therefore, be to arrive at the fair value of the two classes of shares on the basis of a computation of the average maintainable profits. The average maintainable profits would be equivalent to the maintainable yield and indicate the prospective earning capacity of the shares. The fair value so arrived at could be checked by a valuation based on market quotations and by a valuation based on the dividends paid over a number of years.

After giving careful consideration to all the relevant factors and due weight in evaluating the ratio to the higher rights of the deferred shareholders in a winding up, he was of the opinion that the fair conversion ratio was six ordinary shares to one deferred share.

2. AMALGAMATION OF INVESTA WITH TELCO (A)

(Valuation for Exchange Ratio)

In December 1965, the management of the Tata Engineering and Locomotive Company (Telco) was considering the ratio of exchanging its

shares with the shares of Investa Machine Tool Company (Investa) to carry out the absorption of Investa by the Telco. Investa was incorporated in 1942 and it specialised in manufacture and machining of grey iron and alloy castings for diesel engines and locomotive components. It also manufactured lathes and drilling machines. Investa had not paid any dividend to its equity shareholders and dividends on its 4.5% tax-free cumulative preference shares were in arrears since 1949, amounting to Rs 9.36 lakhs upto the end of December 31, 1964.

Telco became interested in acquiring this company as it had no special purpose machine tool manufacturing capacity of its own. Investa had secured a licence for the manufacture, with the collaboration of a well known German firm, for special purpose machine tools of a type that was required by Telco. A firm of chartered accountants was engaged to make an independent valuation of the assets of Investa and Telco. The chartered accountants computed the net asset value after taking into account the depreciation on straight-line method for the automobile division of Telco and on a reducing balance method for other divisions. In case of Investa, depreciation was computed on the straight-line method. The estimate of net asset value of the equity shares of Telco worked out to about Rs 168 per share of Rs 100 each as against the net asset value of equity shares of Investa which worked to about Rs 97 per share of Rs 100 each. The chartered accountants in their report emphasised that net asset value was merely a guide to ensure the corporate capacity to maintain the earning power of the company. It did not by itself give a proper idea of the fair market value of the shares because it did not take into account the earning power of its assets which was the prime factor in determining fair market value of equity shares. Telco's equity shares at the time of report were quoted around Rs 215 as against a quotation of Rs 75 for Investa's equity shares. The chartered accountants recommended one equity share of Telco to be exchanged with 4 equity shares of Investa but this recommendation was not found acceptable as it appeared to be based on an inadequate data.

The management of Telco and Investa decided that the auditors of Telco and Investa should make a joint valuation report and formulate detailed proposals. Joint valuation report recommended that one fully paid equity share of Telco should be exchanged for every $2\frac{1}{2}$ fully paid equity shares of Investa; and one fully paid 9% cumulative redeemable "A" preference share of Telco be exchanged for one 4.5% tax free cumulative preference share of Investa. In valuing the shares of Telco, the auditors had given main consideration to the profit earning capacity of the Company. As Investa was not to continue as an entity in its existing business, and had no demonstrative record of profitability in the past, the

value of its share was determined on the basis of the realisable value of its assets including intangible advantages attached to the existence of a duly organised company. Due regard had been given to the values of the shares of both the Companies as quoted on the stock exchange, although the auditors of both the Companies were of the opinion that the prevailing prices on the stock exchange, while they might serve as a guide, could not be considered as providing the only basis of valuation of shares of either Company. They also had given due regard to the current state of the capital market, financial conditions, restrictions on imports, rise in import duties, appreciation in the value of immovable properties and recent changes in economic policies of the Government.

3. AMALGAMATION OF INVESTA WITH TELCO (B)

(Valuation under bargaining)

Scheme of Amalgamation was evolved and agreed to by the Boards of Directors of both the Companies (Telco and Investa) under which the undertaking and property rights and powers of every description and the liabilities and duties of the Investa were to be transferred, with effect from July 1, 1965, to the Telco without any further act or deed and Investa was to be dissolved without winding-up. Notices were issued to this effect in February, 1966, to the shareholders of both the Companies.

The management of both the Companies received letters from preference shareholders of Investa protesting against the ratio suggested in the Scheme of Amalgamation for exchanging their 4.5% tax-free cumulative preference shares with 9% cumulative redeemable "A" preference shares of Telco. Article 6 of the Articles of Association of Investa provided for certain rights of the preference shareholders: "The Preference Shares shall confer the holders thereof the right to a fixed cumulative preferential dividend at the rate of 4.5% (free of income-tax) on the capital for the time being paid-up thereon and the right in a winding up to payment of capital and arrears of dividend whether earned, declared or not upto the commencement of the winding up in priority to the Ordinary Shares but shall not confer any further right to participate in the profits or assets."

The main objections of the preference shareholders were as follows :

1. Investa was a sick unit of Tata group. Investment in the shares of this Company had been made with the fullest confidence that sooner or later it would come up like so many other companies of Tatas, i.e., Tata Chemicals, Tata Oil Mills, Telco, Ekco Radio, etc.

2. Investa paid preference dividend in the years 1961, 1962 and 1963. The balance sheet as on December 31, 1964, did not disclose the

deficit and the Chairman's statement mentioned that there was a steady demand for the company's machines during the year. Hence, the Company's position for the declaration of preference dividends was not bad.

3. The sum of Rs 9,36,000 was shown in the 1964 Balance Sheet as dividend in arrears on preference shares. A further sum of Rs 29,250 would be due by the end of June 1965, making a total of Rs 9,65,250. This worked out as Rs 96.52 per preference share and was in addition to the paid-up value which was Rs 100 per share. Taking into consideration that preference shares were quoted on 9.5% yield basis, the present value of the Investa preference share bearing 4.5% tax-free (or 5.85% taxable after grossing up : $\frac{80}{100} \times 4.5 = 1.35 + 4.5$) dividend would be around Rs 62, excluding the cumulative dividend of Rs 96.52 per share, as mentioned above. Thus the intrinsic value of preference share should be Rs 158 per share (Rs 62 + Rs 96). Granting a margin of Rs 8 per share for the fact that it might take three or four years to clear up the arrears of preference dividend, a fair compensation for preference shareholders worked out at Rs 150 per share. Thus the injustice was quite apparent as the preference shareholders were being paid only Rs 110 per share.¹

4. Many preference shareholders purchased the shares at Rs 125 per share. They would suffer losses both in capital as well as return on investment.

5. Equity shareholders of Investa would benefit in future as they might get higher dividend in case Telco expanded and made greater profits. But preference shareholders would not have any additional benefit now or in future.

6. Preference share capital of Rs 10 lakhs was adequately safeguarded by an equity of Rs 67 lakhs (it had increased to Rs 75 lakhs by the end of December 1964). Present market value of Investa's assets was much higher owing to increase in import duties and other price increases.

7. If the Company were taken into liquidation the preference shareholders would get Rs 196 per share. They were being deprived of Rs 86 per share for an increase in the rate of dividend from 5.85% to 9%.

Management view. On behalf of the management of Telco, following arguments were given: (i) Additional capital payment of Rs 10 per preference share was being made though it was not provided for in the auditors' report. (ii) It was not correct to assume that arrears of preference dividend would be cleared immediately in one lump sum. In view of

¹ Management of Telco had agreed to make a cash payment of Rs 10 in addition to one 9% Redeemable Preference Share in exchange for 4.5% Tax-free Preference Share of Investa.

the depressed state of machine tool industry and unprofitable working of the Company, it would take several years before the Company could hope to start payment of arrears of preference dividend, let alone clear them. (iii) There was no question of taking the company into voluntary winding-up by preference shareholders because their voting strength was only 14% of the total share capital. (iv) Open market prices of Investa preference shares ranged from Rs 110 to Rs 115 (inclusive of rights to the arrears of dividend) before the amalgamation scheme was announced. As a result of amalgamation preference shareholders would get Rs 119.50 per share made up as follows: One 9% Telco cumulative redeemable preference share of a market value of Rs 105 plus accrued dividend of Rs 4.50 on the Telco preference share for the half-year plus Rs 10 in cash. There was a prospect of receiving a readily marketable preference share of Telco. (v) Investa's preference dividend was in arrears for 17 years. It would take nearly 10 years for the Company to clear the arrears under the existing circumstances. Arrears of preference dividend amounting to roughly Rs 96 per share on a gross basis would be around Rs 75 after tax. This amount would be paid after some period, say 10 years. The present value of net dividend of Rs 75 at 9% at the end of 10 years worked out at about Rs 31.5. Further, Investa's preference share carrying 4.5% tax-free dividend would have a quotation around Rs 60 on the present yield (9%) basis and adding the present value of the dividend arrears of Rs 35, the quotation of the share would be Rs 95. For a preference share valued at Rs 95, the holder of one preference share in Investa would get a preference share of Telco with a market price around Rs 105. Moreover, there was a cash payment of Rs 10 per share. Thus, under the terms of proposed amalgamation scheme, the gain accruing to the holders of Investa preference shares would work at about Rs 25 per share.

The Bombay Shareholders' Association took up the cause of preference shareholders of Investa. It argued that a dark and gloomy picture had been painted to the preference shareholders by forecasting that they would have to wait for 10 years to get their dividend. On the other hand, a good number of engineering companies were already making decent profits. Secondly, the basis of finding the present value of dividend of Rs 95 was challenged. A question was posed: what would be the present value of equity shares of Investa as they were not likely to get dividends for the next 10 years according to this forecast? There was a demand that preference shareholders of Investa could be compensated by giving three preference shares of Telco in exchange of two preference shares of Investa. The Company also received a suggestion that instead of compensating the preference shareholders of Investa by preference share of Telco they might be paid $7\frac{1}{2}\%$ 12-year debentures of Rs 150 in exchange

of Investa preference share. Thereby Telco could get the advantage of tax on interest payment. Ultimately the management of Telco agreed to increase the cash payment from Rs 10 to Rs 20 as a result of this bargaining.

4. AMALGAMATION OF SHORROCK WITH NEW SHORROCK

(Valuation for amalgamation of two equal companies)

In 1960, the auditors of two companies, the Shorrock Spinning and Manufacturing Company Limited (Shorrock) and the New Shorrock Spinning and Manufacturing Company Limited (New Shorrock) were asked to submit a scheme of amalgamation based on fair and equitable valuation of ordinary shares of the respective Companies. The stated objective of amalgamation was to effect internal economies with a view to bringing down the cost of production and using the capital equipment to the maximum advantage of both the units. With regard to the managerial rights of the two Companies by two different managing agency companies, the auditors were informed that it was the intention of the managing agents of both the companies to amalgamate, and therefore, the question of asking for compensation for loss of managing agency from either of the two Companies did not arise.

The break-up value per share in the New Shorrock worked out to Rs 472 as against Rs 383 per share in Shorrock. The installed capacity of the New Shorrock was higher than that of Shorrock on the valuation date, and, therefore, the turnover was correspondingly higher. The profits before tax and the profits before depreciation and tax in relation to the turnover of these two companies had the following relationship:

	New Shorrock			Shorrock		
	1957	1958	1959	1957	1958	1959
Net Profit before tax	28.1	23.7	15.5	11.4	15.1	9.0
Turnover						
Gross Profit before tax and depreciation	31.2	26.5	19.4	14.5	17.5	13.5
Turnover						
Net Profit after tax	34.3	24.4	11.3	12.0	11.3	4.3
Net worth						

The shares of both the companies were quoted on the Ahmedabad Stock Exchange and the following were the market quotations:

	New Shorrock	Shorrock
	Rs	Rs
10.11. 58	798	467
31. 3. 59	912	500
31.10. 59	1,220	580
1. 1. 60	1,435	660
1. 4. 60	1,368	710
1. 6. 60	1,925	970
20. 8. 60	2,195	1,060

The amalgamation took place on the basis of two shares of Shorrock equal to one share of New Shorrock.

5. THE COMMERCIAL AHMEDABAD MILLS

(Valuation for Purchase of Majority Controlling Interest)

In 1964, the Commercial Ahmedabad Mills (Commercial Ahmedabad) became interested in acquiring controlling interest in the Ahmedabad Cotton Manufacturing Company (Ahmedabad Cotton). The management of Commercial Ahmedabad felt that by acquiring the controlling interest in the Ahmedabad Cotton it would be in a position to improve the profitability of both the Companies. Moreover, it was thought that there was a considerable value to the surplus land owned by the Ahmedabad Cotton. The management of Commercial Ahmedabad also considered the possibility of rationalising the production programmes of the two mills with a view to maximising the profits by having a single modern processing house for both the mills.

The market price of shares of Ahmedabad Cotton (par value Rs 250) varied in 1963 from Rs 360 to Rs 415. The lowest and highest quotations in 1964 were Rs 355 and 502 respectively. About the time of offer the share quotation varied from Rs 400 to Rs 440. The Company had declared dividend of 11% for 1959, 12% from 1960 to 1962, and 10% for 1963. On the market quotation, the dividend yield worked out between 6% and 7%. The net asset value per share of Ahmedabad Cotton based on 1963 Balance Sheet was nearly Rs 560.

The deal for the controlling interest was put through at the price of Rs 800 per share. The price was arrived at primarily with reference to the control which went with the block, i.e., the control on the Company's assets. Such a control also conferred on the purchasers the right of man-

agement of the affairs of the Company. The value was sought to be justified by the likely improvements in the working results of the two Companies. The proposal was carried successfully through the shareholders' meeting of Commercial Ahmedabad as this investment required approval under Section 372 of the Companies Act along with the necessary approval of the Company Law Board.

A significant point arising in this deal (which is usual in deals of transfer of controlling interest) related to the rights of the minority shareholders of Ahmedabad Cotton who joined together and made strong representations while the matter was under the consideration of the Company Law Board. As a result of this representation, the management of Commercial Ahmedabad, in their personal capacity, agreed to purchase some of the shares held by the minority group. The terms of the settlement were that in respect of every four shares held by the minority shareholders, Commercial Ahmedabad had to purchase one share at the price of Rs 800, the deemed price at which the controlling interest was changing hands. This term was made a pre-condition by the Government in approving the proposed investment of Commercial Ahmedabad Mills. It is important to note that management of Commercial Ahmedabad as such was not keen to acquire any further shares at the price paid for acquisition of controlling interest once they were assured of 51% control.

6. KILLICK INDUSTRIES LIMITED

(Valuation for purchase of minority controlling interest)

In the last quarter of 1967, certain persons purchased a very large number of shares of Killick Industries Limited from the market. The share capital of the Company consisted of nearly 1,25,000 equity shares of Rs 100 each fully paid-up. The shares of the Company were widely spread-out to about 5,500 shareholders and for the last several years had been quoted in the region of Rs 90 per share. The Company had paid dividend of 8% in 1964, 10% in 1965 and 1966. The yield on market quotation worked out at about 11%. One of the important assets of the Company was its block holding in the shares of Kohinoor Mills which was one of the managed companies.

As a result of the active interest in the purchase of the Company's shares, the market price of share began to rise speedily and moved up from about Rs 95 to over Rs 260. The purchasers of the shares were able to obtain a control over shares larger than that held by the existing management. An arrangement, for several reasons, was considered desirable between the purchasers and the existing management whereby the major-

rity owners were prepared to buy out the minority owners with a view to gaining an absolute control over the affairs of the Company. Under these circumstances a price higher than the normal market value was negotiated for the sale of the interest of the management.

7. MERGER OF SHRI GOPAL WITH THE BALLARPUR

(Share valuation enabling growth through integration)

In April 1968, Karamchand Thapar Brothers, the Managing Agents of Shri Gopal Paper Mills (Shri Gopal) and the Ballarpur Paper and Straw Board Mills Limited (Ballarpur) sent a notice to the shareholders of these two companies to call their separate meetings for approving the proposal for the merger of Shri Gopal with the Ballarpur. In the opinion of the management, the merger had become a necessity. It was a process that would give the two companies opportunities and resources to accomplish together what neither could adequately do separately. It was expected to promote their growth and to assure better dividends and also greater capital appreciation.

An interesting aspect of this merger was that the two companies were complementary to each other. Shri Gopal had huge financial resources but it did not have the raw material potential to take care of its expansion programme. On the other hand, Ballarpur was rich in raw materials but was handicapped for want of additional resources. Shri Gopal, after merging into Ballarpur, could place a sizeable amount of liquidity resources at the disposal of the latter and the two would be financially strong and more stable. This could enable these two companies to develop an operational base to build a tremendous increase in paper production that would allow them to maintain their share in the country's paper production.

Both Shri Gopal and Ballarpur were economically viable units. In terms of profitability both were at the top of the industry. According to a study of finances of paper companies made by the *Economic Times*, on the basis of ratio of gross profit to sales, Ballarpur ranked first with 18.5% and Shri Gopal second with 16.9%; on the basis of gross profit as percentage of total capital employed Shri Gopal stood at the top with 17.8% and Ballarpur second with 12.4%. On the basis of net return on owned funds, Ballarpur was again at the top with 22.1% and Shri Gopal second with 16.9%. The dividend-paying record of the two companies was equally impressive. Shri Gopal had paid an equity dividend of 18% and Ballarpur 12.5%. The market quotations of shares of the two Companies were broadly similar. In May and June 1967, Shri Gopal was quoted between Rs 13 and Rs 14. In the same period, Ballarpur moved between Rs 13 and Rs 15. In terms of break-up value of equity shares, the position of

the two companies was reported to be more or less similar. For Shri Gopal, on the basis of accounts relating to the year ended December 31, 1966, the figure worked out to Rs 22.48 a share. For Ballarpur, on the basis of accounts relating to the year ended June 30, 1967, the corresponding figure was Rs 24.43 a share. Thus a broad parity was claimed by management between the Companies in matters of market quotations of their shares, break-up value of equity shares, the rate of profitability and financial structure.

Financial Problems of Corporate Amalgamation*

Achieving corporate growth and diversification by mergers and amalgamations is a well established business practice. Knowledge of the techniques, opportunities and pitfalls associated with acquisition procedure is, therefore, important to all financial executives as well as to other top executives. Industrial combinations intended to reach an optimum size have made meagre progress in India. This has been attributed to a large extent to the managing agency system which combines in itself certain characteristics of various forms of combinations. Industrial combinations of different types lead to enormous benefits accruing to companies in different branches of trade and industry through economies resulting out of consolidation of technical and managerial activity of individual concerns. The actual process of effecting a combination of two or more companies involves some very interesting practical problems and difficult financial considerations. It is proposed to consider a few important ones under two heads: (i) pre-merger, and (ii) post-merger.

Pre-merger considerations

Selection of the type of combination. The most important problem is the selection of the type of combination: whether it is to be a merger, an amalgamation, a pool or a holding company. The selection must depend upon the nature of industry, the willingness of the existing managements to enter a combine, size of the units, the number of units and various other technical factors. The subtle distinction between a merger and an amalgamation is very important from the viewpoint of corporation finance. An amalgamation takes place where two or more companies carrying on business combine together and form a new company. All the companies forming part of such a combination go into liquidation and sell their

* This chapter is based on the material prepared by Mr. N. N. Pai, Chairman, Corporation Bank, Mangalore for the Programme in Financial Management of Indian Institute of Management, Ahmedabad.

business to a new company formed for the purpose of taking over the assets and liabilities of companies going into liquidation. The term 'merger' applies where an existing company buys over or absorbs one or more other company or companies for an agreed purchase consideration. Here all the absorbed companies will have to go into liquidation while the absorbing company retains its original status and name. Sometimes an amalgamation is found not very suitable because one of the amalgamating companies has acquired a very high goodwill or may have a large carry forward of depreciation or a carry forward of loss to be set off against future profits. In such cases a merger may be the only solution. The company enjoying the high goodwill or the carry-forward depreciation and/or loss should absorb the other company with which an amalgamation is proposed and not *vice-versa*. Such considerations would rule out an amalgamation involving the formation of a new company to take over two or more existing companies.

Capital structure. Another problem which generally arises is the arrangement of the capital structure of the combination. Should it issue equity shares, preference shares and/or debentures to the shareholders of the merging company/companies and in what proportions? Here one has to take into consideration the capital structures of the existing companies and find out how best they can be accommodated into the capital structure of the combination. For example, if one of the amalgamating companies has issued debentures, practical difficulties will arise in the accommodation of such creditorship securities into the capital structure of the new company or the combination. The more common method is to settle the whole of the purchase consideration in respect of both fixed and floating assets of each of the amalgamating concerns for fully paid equity and/or preference shares.

Valuation of assets. For having an amalgamation or a merger there should be an agreement of all parties concerned upon the basis at which the assets of various amalgamating companies are to be transferred to the acquiring company. This problem becomes most difficult in actual practice and many proposed merger schemes tend to break down in the absence of agreement on this point. The assets of different concerns may vary in quality and type. They might have been acquired at different periods. Even after arriving at some uniform basis for acquisition of assets, certain adjustments would be essential for the differences in type, quality, age of machinery and so on.

Tax aspects. It is very important to examine the tax aspects of mergers and amalgamations. If this is not done, the companies involved may unwittingly entangle themselves in tax complications which may impose a tax disadvantage or a tax liability which could have been avoided. The Finance (No. 2) Act, 1967 has introduced several provisions with a

view to facilitating amalgamations of a certain type and to preventing hardship which might otherwise be visited on amalgamating companies. A general definition of the term 'amalgamation' has now been given in Clause (1A) of Section 2 of Income Tax Act, 1961.

This definition makes it clear that the term amalgamation includes the merger of one or more companies with an existing company as well as the merger of two or more companies to form a new company. The definition lays down :

(i) That *all* the property and *all* the liabilities of the amalgamating company or companies immediately before the amalgamation should become the property and liabilities of the amalgamated company.

(ii) That the shareholders holding not less than 9/10ths in value of the shares in the amalgamating company or companies (other than shares already held immediately before the amalgamation by or by a nominee for the amalgamated company or its subsidiary) should become shareholders of the amalgamated company by virtue of the amalgamation.

(iii) The amalgamated company should have acquired the property of the amalgamating company *by the issue of shares* in the amalgamated company and not for cash or as a result of the distribution of such property in a winding up.

It will, therefore, be noticed that in order to make the merger or acquisition a 'non-taxable' transaction, it is necessary to fulfil all the conditions laid down by Clause (1A) of Section 2. The type of amalgamation envisaged by this clause is amalgamation by transfer of the undertaking of the amalgamating company/companies to the amalgamated company. Moreover, all amalgamations as mentioned in Section 394 of Companies Act do not fall within the purview of this definition. The amalgamations involving the transfer of the *whole* (and not part) of the undertaking property and liabilities of the amalgamating company/companies to the amalgamating company only can fall under Section 2 (1A).

Unabsorbed depreciation. Though the Finance (No. 2) Act, 1967 has introduced several provisions in the Income Tax Act with a view to facilitating amalgamations, there is no provision whereby the benefit of carry forward of depreciation can be claimed by the amalgamated company. Under explanation 2A to Section 43 (6) of Income Tax Act, the written down value of a depreciable asset of the amalgamating company is to be taken as its written down value in the amalgamated company. Explanation 3 to the said section provides that only depreciation carried forward under Section 32(2) shall be deemed to be depreciation actually allowed for the purposes of determining the written down value of an asset, so that the transferee gets the benefit of only *lower* written down

value on which the future depreciation will be allowed. Therefore, in order to keep alive the unabsorbed depreciation, it is necessary that the emerging company should be the one which has such depreciation and not a new company. There would be a considerable tax advantage to the combination if a company having a large carry-forward of depreciation absorbs the other company to enable it to set-off the unabsorbed depreciation against future profits.

Carry-over of losses. Under proviso to Section 72(1) the benefit of carry-forward of losses will be available only if such a company continues to carry on its business though subject to the provision of Section 79. Therefore, in such cases substantial tax advantage will accrue to the combination if the company having a large carry-forward of loss is allowed to absorb the other company with which an amalgamation is proposed.

It will, therefore, be seen that the tax considerations have a significant influence and weigh heavily in arriving at the decision as to whether the acquisition should take the form of the merger or an amalgamation.

Post-merger problems

If the economies expected from an amalgamation are to be achieved, organizational reorientation, personnel reassignments and the realignment of responsibilities for products, markets, engineering, research and development and manufacturing ventures must be made. Steps should be taken to eliminate functions which are duplicated in both companies after merger.

The important post-merger problems in the area of finance and accounting need attention. The accounting methods, procedures and policies of the merged companies must be given careful consideration and changes made, as needed, to make them uniform. Unless there is a reasonable uniformity in these matters the reports to the management and shareholders are likely to be misleading and not true and fair. All policies and practices should be common, particularly in respect of following matters :

(i) *Accounting years.* Accounting periods must be the same for all the merged companies as it would facilitate consolidated reporting for internal purposes as well as for public. The annual accounts to the shareholders are also required to be presented in a consolidated form for all its divisions or branches.

(ii) *Inventory valuation.* The valuation of inventories should be made on uniform basis, unless the activities of the combined companies are highly diverse.

(iii) *Fixed assets accounting.* Policies governing the nature of capital expenditure should be the same for the combination.

(iv) *Budget and control.* It is necessary to adopt common policies and a common format for presentation of statements. Reports which are in different format and prepared under different policies can confuse and mislead the top management.

(v) *Cost accounting.* It is necessary to adopt a common costing system; otherwise interim operating reports prepared under different costing systems can lead to erroneous conclusions.

(vi) *Transfer pricing.* Sound policies governing the inter-division transactions and profits must be established particularly if separate profit centres are to be maintained. On the other hand, there are often tax and other advantages which can arise out of taking substantially all the profits in one company at the expense of the other.

Other matters

(i) The amalgamating company may be doing business in some States in which the amalgamated company has not done business. The amalgamated company will have to qualify in these States by getting itself registered with the authorities concerned in time (e.g., Registration under the local Sales Tax Law, Professional Tax Authorities, etc).

(ii) All the customers and creditors would be required to be suitably informed of the changes in the constitution of the individual companies after merger. So also intimation with proof of take-over will have to be sent to all parties like Government, semi-Government or private bodies for transferring security/earnest deposits, investments lodged with various bodies against contracts, advances paid on various accounts, etc.

(iii) Immediate steps will have to be taken to get all outstanding contracts standing in the name of the amalgamating company transferred to the amalgamated company.

(iv) All insurance coverages should be examined and adequate cover taken for the properties of the company.

(v) All the banking arrangements will have to be reviewed. However, it may be desirable to continue the separate banking arrangements of the companies to ensure continued competition with better service and higher credit facilities.

(vi) Appointments of auditors and solicitors require to be reviewed. The firms serving the acquiring company are usually continued.

(vii) On amalgamation having been completed it would be necessary to inform the Income Tax Officer (Sections 176/178) and Sales and Tax Officer (Section 30) about the liquidation of amalgamating company and relevant returns filed.

Financial Management in Public Sector Undertakings

With the growing participation of the State in industry, the manner in which these activities should be conducted and managed has assumed considerable significance. The adoption of the socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of the public utility services, should be in public sector. Other industries which are essential and require investment on a scale which only the State, in the present circumstances, could provide, have also to be in the public sector. The State has assumed direct responsibility for the future development of industries over a wider area. There is not only a large spread in the size of public undertakings set up over a comparatively short period of time but also a considerable variety in the kinds of undertakings.

The number of new enterprises and the range of their size and of variety and complexity may give an idea of the management problems involved. The new State enterprises are proposed to constitute a lead-sector intended to prime the pump of India's industrial growth during the coming years. They are contemplated to generate, directly or indirectly, the bulk of new industrial employment and provide economic surpluses out of which future additional growth would be financed. If these enterprises are to succeed, speedy decisions and a willingness to assume responsibility are essential. There should be decentralization of authority and the management should be along business lines.

In judging the performance and shortcomings of public enterprises, it is important to bear in mind certain features which distinguish them

from the enterprises in the private sector. Though they are enjoined to observe business and commercial principles, the profit motive cannot be such an over-riding factor in their case as it is in private enterprises. For example, location of projects in backward regions or operation of domestic air services on uneconomic routes indicate that public interest rather than profit motive is the deciding factor. Public undertakings also face problems in securing managerial personnel of high quality. In the beginning most of the managerial personnel in these undertakings obviously came from Government Departments and not from the industrial and commercial fields. The terms and conditions of service in these undertakings had to bear a relation to those prevailing in the Government Departments. This made it difficult for them to procure the services of persons well-versed in management skills.

Public undertakings have, however, served as a powerful instrument for achieving social and economic objectives. Serious gaps in the economy, particularly in the field of heavy industries such as manufacture of steel, heavy machine tools, heavy electrical equipment, heavy chemicals and fertilizers, exploration and refining of oil and the indigenous production of defence equipment have been filled up by public enterprises. These undertakings have not only assisted in earning foreign exchange but also in reducing the original imbalance through a planned dispersal of new industries. Other important objectives of public enterprises are: increasing opportunities for gainful employment and prevention of concentration of economic power in private hands.

While the public enterprises have strengthened and diversified the Indian economy and given impetus to economic growth, their working has revealed defects which need to be removed with a view to improving their performance in the future. Several public sector projects have taken longer time in construction than originally estimated due to defects in planning and delays in sanctions. Capital expenditure has been avoidably high in many projects resulting in over-capitalisation, and many projects' expenditure has been excessive on townships, administrative buildings, guest houses, etc. Several public undertakings have accumulated substantial losses. It is true that in projects having longer gestation periods losses and low returns are unavoidable in the beginning. However, even after making allowance for all these factors, there have been other causes contributing to the accumulation of losses. One of the major causes is over-capitalisation. The implementation of the expansion programme before a project reached full production as in the case of Hindustan Steel, or inadequate utilisation of installed capacity as in the case of Heavy Engineering Corporation and Heavy Electricals, Bhopal also contributed to the accumulation of losses. The most impor-

tant failure of the public sector is its inability to develop to the required extent its own resources of managerial and technical personnel and its continued dependence on foreign engineers, technicians and deputationists from Government. Of equal significance is the failure to achieve healthy labour-management relations in many public undertakings. Further, neither in quality nor in prices have some public undertakings brought full satisfaction. The organizational structure devised for the management of the public undertakings has also several deficiencies. The top management have not been in a position to give sustained and positive direction to the persons at the operating level. There is too much of official representation and too little of technical talent on the Government Boards. The position is also not satisfactory in regard to the delegation of authority. The demarcation of responsibility between Government and public undertakings is also not sufficiently clear-cut, resulting in eroding the autonomy of public undertakings. Nationalisation does not mean bureaucratisation. Not only should the public enterprises have the maximum possible autonomy to function on sound business lines, they should also be responsive to the needs and interests of the community.

Considerable experience has now been gained in the set-up and running of large and complex public enterprises. With systematic effort it could be possible to profit from these experiences in increasing the resources generated by these undertakings and also in reducing capital costs of future public sector projects.

SELECTED FINANCIAL PROBLEMS

Planning and construction of projects. As the public sector in India has expanded in recent years at a rapid pace in pursuance of the Government's policy, most of the public undertakings have been set up in the face of heavy odds. Their initial planning and commencement was in hands not well-versed in managing commercial and industrial ventures. The Committee on Public Undertakings in its 13th Report observed that "many of the present uneconomic legacies of our undertakings can certainly be related to inadequate attention having been paid to various aspects at the planning stage of the project." As the Draft Outline of the Fourth Plan envisaged a further investment of Rs 3,500 crores on industrial projects and mining schemes in the Central public sector, the need for improved planning of projects and adoption of modern techniques of planning can hardly be over-emphasised. Detailed feasibility studies for public sector projects should be conducted. Planning Commission has prepared a Memorandum on Feasibility Studies for Public Sector Projects. Its adoption has been recommended by the ARC.

Public undertakings should also be encouraged and assisted to set up adequate designing and consultancy organizations.

Over capitalisation. The Study Team set up by ARC has observed that many undertakings like the Hindustan Aeronautics, Heavy Electricals, Heavy Engineering Corporation, Fertilizer Corporation, Indian Drugs & Pharmaceuticals agreed that their projects were over-capitalised involving unfavourable input-output ratio. The causes leading to over-capitalisation can be traced to inadequate planning, delays and avoidable expenditure during construction, surplus installed capacity, compulsion to purchase imported equipment on a non-competitive basis under foreign collaboration agreements, expensive turn-key contracts, bad location of projects, provision of housing and other social amenities on a liberal scale. The total capital outlay on townships of public enterprises has been estimated in the neighbourhood of Rs 300 crores constituting over 10% of the corresponding total investments on the projects.

Equity-debt ratio and cost of capital. The cost of capital in public undertakings should be inclusive of cost of raising of different types of capital by them and it should be reckoned at the market rate rather than at the lower rate at which the loan or equity capital might have been provided to them. Two specific problems may be suggested in this direction. First, different public enterprises have got loans from the Government at different rates of interest. Secondly, enterprises characterised by a high ratio of equity to loan capital give the impression of a lower finance cost than those with far higher ratio of debt to equity since dividend on equity is not treated as a cost in the accounts, whereas interest on the loan capital is debited as an item of cost. The misimpression becomes severe where the enterprises belonging to the former category (higher equity to debt ratio) are marked by low rates of profit.

All funds for public enterprises are either in the form of loans or shares provided by the Government and the loan equity ratio was fixed 50 : 50 in 1961 when the Government of India decided that "while making provision for the projects in the public sector the working assumption will, unless there are exceptional reasons to the contrary, be that each project will be financed on the basis of appropriately half its capital being in the shape of equity and the rest being in the shape of loans." Where loan equity ratio is 1 : 1 and equity capital is large and the company is not making profits, the amount due in respect of interest is reflected in the amount of the enterprise but dividend not declared is nowhere reflected so that what the community actually foregoes on account of this is not known. If this is not known even notionally, how can it be possible to know anything about losses and gains in terms of the particular cost of investments made in the public sector? A number of public enterprises have declared no dividends or small dividends.

The creation of reserves by transferring amount for the repayment of loans or by increasing company resources requires closest examination. One can hardly discover this situation by going through one year's accounts as one does not know from the year's accounts what happened in the previous years. Many of the public enterprises have reserves without meeting the costs of capital. In such cases reserve is not wholly a reinvestment but an investment of non-payments of capital. The reserve can be reinvestment of funds in real sense when built after meeting all costs, not otherwise.

Whether there is a case for declaring dividends is a matter of great importance for tax payers and, therefore, it is essential to lay down some rules and norms. Some way must be found for introducing the concept of notional provision of dividends in the amounts of public enterprises somewhere away from the balance-sheet. Secondly, some norms should be evolved regarding the policy of company reserves. Thirdly, the whole question of 1 : 1 ratio must be reopened and discussed in the full light of known facts and difficulties of particular enterprises carrying heavy loads of debt burden from year to year, a sizeable part of which can be converted into equity.

ARC has recommended that the whole question of equity-loan ratio should be re-examined and a proper capital structure for different categories of public enterprises worked out. The loan-capital ratio in public undertakings should not be treated as rigidly fixed irrespective of their size, productive function and borrowing capacity. There should be room for flexibility and variations depending upon the generation of internal resources and the increase in the borrowing power of the undertaking.

Pricing. The interest of the Government in the pricing policies of the public sector enterprises arises from the fact that many of them are key industries and are engaged in the production of goods or the provision of services which are basic to the life of the community and some of them have a monopolistic element. Further, the fact remains that the automatic discipline exercised by the market gets weakened or disappears as soon as the system of administered prices is brought in. If prices of the products of public enterprises are kept artificially low it might lead to a less careful and less economical utilisation of its products; while, on the other hand, the absence of price regulation in respect of monopolies might enable the undertaking to show profits without necessarily being efficient in its operations. The market situations in which public enterprises operate provide the framework for the fixation of price of their products or services. The market situations vary from monopoly conditions to competitive markets. These different considerations

and market situations have to be kept in view while examining the propriety of the pricing policies of the public enterprises. A uniform set of principles cannot, therefore, be applied to all classes of public enterprises.

A system of price determination should serve three principal objectives: it should promote a rational allocation of scarce resources; lead to optimal utilisation of resources; and accelerate the growth of the economy. All public enterprises, with the exception of those working in a system of administered prices, have formulated their price policy with a view to covering costs of making a surplus on the basis of whatever estimates they had of their financial obligations. Thus, the pricing structures are bound to contain the element of arbitrariness as these obligations have not been indicated to the public enterprises in precise terms. Even for the Fourth Plan, the draft outline had given only a general indication that public enterprises should aim at a rate of return on the capital employed of not less than 11 to 12%. Such a directive did not make it clear to management whether each of them has to aim at those returns or this is supposed to be an indication of the average performance expected from all the public enterprises taken together. It will not be a healthy development if public enterprises working under monopoly or near monopoly conditions attempt to increase surpluses more by increasing prices and less by reducing costs and ensuring fuller utilisation of their capacity.

Now it is no longer seriously argued that public enterprises should function on a no-profit-no-loss basis. In fact, Government now look upon the public sector enterprises as creators of new wealth and expect them to yield resources for financing the Five Year Plans. The Study Team has felt that financing for expansion should be taken as a specific obligation of public enterprises in the industrial and manufacturing fields. Public enterprises should provide additional resources to the State in a developing country where the rate of re-investment in development programmes by the Government is higher than that by individuals. There might be incidents where larger social consideration required a public enterprise to deliberately forego the earning of profits. Even in such cases the minimum to be aimed at should ordinarily be that the enterprise is able to pay its own way, that is, the break-even after providing for depreciation charges calculated on a realistic basis. If an undertaking cannot or does not reach this minimum, a very detailed scrutiny should be made to assess the justification for a manifestly uneconomic concern on grounds of public interest.

While formulating the pricing policies of units in the public sector, the following principles should be kept in view:

- (i) At the very minimum, public enterprises should pay their way and not run in losses unless there are clear and overriding reasons of public interest which are indicated in an open directive issued by the Government.
- (ii) In the case of public utilities and services greater stress should be laid on output than on return on investment, the former being extended upto a level at which marginal cost is equal to price.
- (iii) While determining the price structure commensurate with the surplus expected from them, public enterprises should keep the level of output as near the rated capacity as possible subject to the volume of demand for the product.
- (iv) Public enterprises in the industrial and manufacturing field should aim at earning sufficient surpluses to make a substantial contribution to capital development with their own earnings.

If the Government requires a public undertaking to keep prices at an artificially low level, the financial obligations of that undertaking should be revised. If an undertaking has to pursue a non-profitable course of action under Government directions, then the Government should either subsidise it or the enterprise should be entitled to ask for a downward revision of its financial obligations.

In a competitive market the price mechanism serves as an effective instrument for cost control. But the price mechanism does not perform this function in a monopolistic enterprise or in an enterprise which fixes price on the basis of cost plus formula. The cost plus formula has been generally adopted in the case of undertakings whose products are purchased solely or mainly by Government. The cost plus formula impairs keenness of management to reduce price and may even lead to a situation in which the undertaking finds that it can earn larger profits if its costs are higher. As an improvement on the cost plus formula, the system of using the landed cost of similar products as a norm for fixing fair price has been adopted in respect of undertakings like the Heavy Electricals, HMT, Heavy Engineering Corporation, etc. It is argued that the landed cost formula has an advantage that it enables to obtain element in the public enterprise operating under monopoly conditions and that it should be applied in respect of such undertakings. But the landed cost includes many elements and, therefore, cannot be regarded as a norm for the comparison of prices. The Study Team has, therefore, recommended that the c.i.f. (cost, insurance and freight) price plus the countervailing duty, if any, should be regarded as a standard of comparison. In case where the imported goods have the benefit of export subsidies in the countries of origin the c.i.f. price should be proportionately weighted.

Prices determined on this basis will give an indication of soundness or otherwise of the investment made in the project. Then this formula may not lend itself to general application as such. For instance, the HMT is in a position to sell its products at a price substantially lower than the c.i.f. price of similar items while the Heavy Electricals, Heavy Engineering Corporation, Mining & Allied Machinery Corporation, etc., are not in such a position. To a certain extent, these variations may be a result of over-capitalisation in one project as compared to another. They may also be due to the different circumstances in which the undertakings find themselves. It is, therefore, necessary to make allowance for varying circumstances and fix certain permissible deviations from the norms arrived at on the basis of c.i.f. value of similar items after adjustment from export subsidy, if any, available to such items in the countries of origin. The Study Team has thus recommended that wherever public undertakings are operating under non-competitive conditions and where the number of buyers of the products is limited, the price levels should be determined on the basis of the c.i.f. value of similar items in preference to a cost plus formula. However, in applying this formula ability to produce goods at costs matching the c.i.f. price of similar goods in various undertakings should be recognised and detailed examination of the cost structure of the products of the public undertakings concerned is necessary. For this purpose Government can utilise the machinery of the Tariff Commission or the Cost Accounts Organization of the Ministry of Finance.

Generation of surpluses of internal resources. The surplus expected from public enterprises as a source of funds has assumed a great importance with the rise in investment in public sector during the Five Year Plans. Surplus means the balance of resources expected to be available with the enterprise after providing for working expenses, normal replacement, interest payments, and dividends. However, surplus shown as anticipated from public enterprises was at best tentative even in the Third Plan. No break-up was attempted either undertaking-wise or industry-wise. Even in the Fourth Five Year Plan efforts were not made to provide detailed information undertaking-wise or industry-wise about these surpluses.

The Committee on Public Undertakings expressed its regret about the manner in which the assessment of the surplus from the public undertakings had been made for the Third Five Year Plan. *Ad hoc* assessment of surplus is unfortunate as it raises hopes which cannot be fulfilled and exposes the undertakings to public criticism. In fact, surplus from public undertakings should be made on a realistic basis and in consultation with them. The ARC Study Team supports this point of

view, and has further recommended that the existing situation calls for a clear statement on the financial and economic obligations of the public enterprises. Time has now come for a more specific and clear statement in which Government lays down the principles that should guide the creation of various reserves, the extent to which enterprises should undertake the responsibilities for financing, the anticipated returns on the capital employed and the basis for working out rational wage structures and pricing policies. It has also recommended that broad principles should be laid down to retain profits (after depreciation) in the undertaking and the dividends to be paid to Government. The extent of retained profits should be determined by the obligation that the enterprise has for financing the future growth.

Borrowing for capital expenditure from the open market. The Study Team has examined the suggestion that the comparative security that Government financing offers fails to create the necessary financial discipline in the public enterprises and that it will, therefore, be better if they are asked to resort to borrowing from market on their own credit even for capital expenditure. The Team has felt that the amount of capital required by the public enterprises is much too large to be raised in the open market without the support of the Government guarantee. Hence such unguaranteed borrowing by highly capital intensive projects that shall have long periods of gestation is not a realistic proposition at the present moment. Similarly, the suggestion that whatever capital finances Government plan to provide to the public enterprises should be channelled through institutions like the Industrial Development Bank of India has not been found feasible.

The current policy of the Government that for working capital requirements public enterprises should normally obtain funds from the banks without depending on the Government or a Government guarantee finds favour with the Team. But in certain cases public undertakings might be unable to secure funds in this manner, particularly in the initial stages. In such cases Government should be willing to provide necessary guarantee and to consider the request of public undertakings even for working capital requirements. Public enterprises should be authorised to deal with any scheduled bank that has deposits above a certain limit.

Budgeting. The budgetary forms and procedures adopted in the public sector follow the traditional pattern. With a few exceptions, the system of classification of expenditure adopted in the budgets does not link expenditure to activities and end-results, though this is a necessary requirement for performance budgeting. The budgets prepared by many of the undertakings reveal that they are not prepared in every detail and that beyond serving as a base for obtaining funds and an instrument for

controlling expenditure levels, they do not serve other management objectives. Most of the public undertakings do not at present prepare comprehensive business type budget. In many cases very wide variations have occurred between the estimates and forecasts made in a budget and the actual figures of performance. A number of instances of this type can be noted from the auditors' reports.

The budget should be viewed as a plan and programme of action—an integral part of management dynamics which enables the members of the enterprise to make use of resources, and to project their idea into the future, and concurrently to look back and review the actual performance as compared with promise and intentions. When used merely as an instrument of control, budget loses much of its value and leads people to budget more than they anticipate to spend and less than they hope to perform, turning out figures of performance that show an improved but an unreal and distorted picture.

A comprehensive budget for the industrial and commercial enterprises should also use non-financial units, wherever this is more desirable, and cover the entire organization to include, *inter alia*, the following range of budgeting activities :

- (i) Production Estimates.
- (ii) Sales Estimates.
- (iii) Cost of production budget with its necessary sub-divisions :
materials purchased estimates, labour and personnel estimates, overheads estimates, plant maintenance estimates, etc.
- (iv) Manpower Budget.
- (v) Township and Welfare Estimates.
- (vi) Research and Development Estimates.
- (vii) Capital Expenditure Budget.
- (viii) Profit and Loss Estimates.
- (ix) Cash Flow Estimates.
- (x) Capital Employed Budget.

For examining the method of preparing budgets, the role of budgeting in policy formulation and the use of the budget as a management tool, the subject may be divided as follows :

- (a) Revenue Budgets—budgets of income and expenditure on revenue account;
- (b) Capital Expenditure Budgets—budgets covering tools of acquisition and disposal of fixed assets including the resources required; and
- (c) Cash Budgets—Budgets of cash receipts and disbursements in a given period.

(a) *Revenue budget.* Besides being a forecast of income and expenditure, it should be treated as a plan and a base for the formulation of policy and for laying down the expected standards of performance. Budget involves a two-fold process, the submission upwards of estimates for different units and the transmission downwards of provisions decided upon at higher levels. Further, a public undertaking should not be required to submit its revenue budget to Government or Parliament for prior approval because full publicity to revenue budget estimates may not be a sound business policy and is likely to place the enterprise in a disadvantageous position *vis-a-vis* its counterparts abroad or in private sector. However, if the revenue budget is a deficit budget and the Government is expected to make up the deficit, in that case it can be submitted to Government or Parliament for prior approval.

(b) *Capital expenditure budget.* Every public enterprise should have a fairly long-term capital budget to serve as a framework within which new schemes can be planned, approved by the Government and taken in hand. Government should each year discuss with the undertaking and approve the general lines of its plans for development and capital expenditure for next five years, agreeing to appropriate long-term commitments as well in order to enable the enterprise to undertake long-term capital planning on a realistic basis. Proper control should be prescribed to keep public sector investment within the Government's resources. Government may fix an upper limit on the expenditure to be incurred on capital account by the enterprises during a shorter period ahead, say, two years.

Model forms should be worked out in respect of various items of capital expenditure programme by the Bureau of Public Enterprises in due consultation with the Ministries concerned and circulated to public enterprises for information and use. As regards working to a capital expenditure budget, efforts have to be made to ensure that the schemes are started as planned and once started, schemes are completed with the minimum delay. Actual results should be periodically compared with the budget with a view to investigating into causes and taking remedial action. Such a review will also help in improving accuracy of estimates for future capital expenditure budgets.

(c) *Cash budget.* The cash budget is an integral part of the budgetary system as it provides the means of planning, forecasting and keeping check on the funds that are available to meet payments arising out of either revenue or capital transactions.

Budget manual. The Study Team has recommended that each public enterprise should be asked to compile a comprehensive budget manual to cover the forms for compiling the basic information necessary

for the budget, the time schedule indicating all stages from the start of budget preparation to its approval, the responsibility/cost centres, financial powers relating to budgetary levels at each responsibility centre, and the constitution and function of budget committees. The budget manual should also contain the details of periodical budgetary reviews and the forms and procedures necessary for such reviews and for exercising budgetary control. The reporting procedure should also be clearly laid down. The Bureau of Public Enterprises should initiate action in co-operation with the Ministries concerned and with the assistance of outside experts, wherever necessary, to enable the public enterprises to compile the budget manual to suit their needs.

Financial control and delegation of authority. The preparation of a business type budget, periodical reviews and the adoption of management accounting practices for exercising budgetary control will facilitate an increase in the delegation of powers. It would also help in the fixation of responsibility centres and the conferment of commensurate financial powers on the persons entrusted with responsibility for the use of resources. Once these matters are brought about, it should not only be possible to ensure sufficient delegation of authority but also to reduce the emphasis of prior financial concurrence and the dependence of line authorities like managers, purchase officers etc., on the finance branch. The practice of obtaining prior concurrence may be of value in Government departments but it is not profitable in the case of public enterprises. Its elimination will make the line authorities feel really responsible.

Internal audit. A good deal of misunderstanding exists about the nature, scope and performance of internal audit in relation to public enterprises. It should be viewed as a service provided to the management. The internal auditor does not directly take part in management decisions though his findings and observations may influence decision-making. Internal audit should be regarded as an independent appraisal activity within the enterprise. The object of the appraisal is to review accounting, financial and other procedures and the observance of rules and procedures by the line authorities, to ensure against fraud and mistakes, and more immediately to ensure simplicity and efficiency in procedures. At present it is customary to attach the internal audit organization to the financial advisor/controller of the public undertaking. The Study Team has felt that it will be appropriate to keep internal audit as a part of the overall financial organization of the enterprise.

The principal tasks of internal audit are: (i) to review the soundness, adequacy and application of accounting, financial and operational

controls; (ii) to ascertain the compliance with prescribed plans and the accuracy of accounts and other data developed within the organization; (iii) to make constructive suggestions for improvement; and (iv) to review and report the action taken by line authorities on the points brought out in previous audit reports, both internal and external.

The Bureau of Public Enterprises should provide consultancy assistance to the undertakings to enable them to set up adequate finance and accounts organization, including internal audit, on the right lines.

Role of financial advisor. There is need for reorientation of the present role of the principal finance officer, i.e., the financial advisor/controller of the enterprise. The financial advisor/controller should deem himself to be an integral part of the management team and not look upon himself as an outsider representing the financial interests of the Government. The latter impression gets somewhat reinforced by the fact that most of the financial advisors of the public enterprises today are Government officers on deputation. The Study Team has strongly recommended that the power to appoint financial advisor should be vested in the management board and not reserved to Government. However, the management boards may be directed to make this appointment after consultation with the Government. The role of the financial advisor can be envisaged as that of the principal advisor to the chief executive in all financial matters but the primacy of the chief executive, according to the Study Team, should be maintained in the management field; otherwise the whole finance organization becomes a great burden on the operation of the enterprise and much of its utility as a 'vital management' gets lost.

The financial advisor should be encouraged to place greater emphasis on the management accounting, especially of their working, rather than on maintenance accounting, checks, scrutiny or approval of proposals coming from different departments. Good financial management should not seek to dictate to line management but aim at providing to management informations on resource utilisation and statistical analysis that reveal what the plans and performance data truly signify so that management may improve the efficiency of resource utilisation and ensure greater profitability. In this task the financial advisor and his organization have an extremely important role to play.

If built-in checks are provided in an organization, such as collection, analysis, interpretation and presentation of the relevant data to form the basis of financial decisions, no separate financial advice as such would be necessary. There should be a change of emphasis from expenditure advice to the technical aspects of financial management. The techniques of financial management have not received the attention they deserve.

The public enterprises cannot afford to neglect these modern techniques and rely unduly on *ad hoc* financial judgments.

Materials management. The value of inventory holdings of the public undertakings constitutes the major component of their working capital. The position as on 31.3.68 in respect of 55 running concerns was that against the working capital of Rs 817 crores, the inventories accounted for Rs 873 crores. Though it is difficult to lay down a single standard to assess in precise terms the adequacy or otherwise of inventories, there are certain well-tried ratios which provide a good insight into the inventory of an undertaking. A common determinant is the value of inventories expressed in terms of consumption in months or cost of production in months. In five undertakings, namely, Hindustan Teleprinters, Hindustan Aeronautics, Hindustan Shipyard, Bharat Earth Movers and Bharat Electronics, the inventory holding was higher in value than two years' cost of production; in five others it was equivalent to less than two years' but over one year's cost of production.

The sheer size and value of inventory holdings of public enterprises indicate that it is essential to subject them to strict technical scrutiny. Even a marginal reduction brought about in the holdings will repay the cost and efforts of such an investigation. The Committee on Public Undertakings in its 40th Report, March 1967, have observed that "if the inventories of industrial running concerns can be reduced to six months' production which would by no means be difficult... it would mean release of capital to the extent of Rs 104 crores."

Most undertakings would have to break down their large inventory holdings into manageable schemes for applying selective controls in accordance with their monetary value, frequency of demand, criticality and essentiality. While some of the large public undertakings have set up organizations for the better management of materials, most of them do not as yet have an effective materials management set-up. The Study Team has recommended that materials management should be accorded due recognition at the top level where a central control section should be set up for materials planning and for planning and securing the introduction of modern techniques of materials management such as codification and standardisation, ABC analysis, value analysis, etc. The Bureau of Public Enterprises can provide the necessary consultancy assistance. Comprehensive materials management manual should be drawn up to give correct shape to the relevant scientific aspects and to outline the prescribed procedures relating to indenting, procurement and stocking of materials.

Problems of reporting. There is a common feeling amongst public undertakings that an unduly large number of reports is being called for from them and at too frequent intervals. This voluminous

information collected in the controlling ministry is hardly put to adequate use. The existing information systems are not streamlined and effective enough, and it is doubtful whether any serious analysis is made of this data which often are loosely presented and much out-dated. The Parliamentary Committees have often commented upon this feature. The Committee on Public Undertakings in its 5th Report on the ONGC remarked that the Commission submitted about 55 periodical reports and returns without the Ministry getting a clear picture of problems and the progress of the Commission. Similarly, in its report on the National Buildings Construction Corporation, it pointed out that despite the submission of 11 reports and returns, neither the Administrative Ministry nor the Ministry of Finance were aware of the difficult financial position of the Corporation in time.

Many enterprises are required to furnish an extremely large number of reports and returns. For instance, the ONGC submit about 59 reports during the year, Neyveli Lignite Corporation 51, ITI 43, Mogul Lines 41, Mining and Allied Machinery Corporation 27, HMT and LIC 26 each, National Coal Development Corporation 23, and the Indian Oil Corporation 19. These reports have not served the purpose for which they might have been introduced. There is need to review the form and number of reports and returns with a view to rationalising them and increasing their utility. Adequate export cells should exist at a central point in the Government for processing the returns and for taking follow-up action.

The ARC has recommended that an expert study group, under the Bureau of Public Enterprises, should be set up to make a detailed examination of the reporting by the public undertakings to the Government. This group can analyse with the help of officers concerned in the Ministries and public undertakings as well as of external consultants in the field. The Bureau, in consultation with the Ministries and public undertakings, should also work out a model form for the annual reports of public undertakings. Standard operational indices should also be prepared for use by public enterprises in order that essential information relating to their working is brought out in the annual reports in a readily intelligible form.

Appraisal of performance. The problem of appraisal requires laying down of suitable standards of performance and of indicating yardsticks to assess how actual performance compared with what is estimated. For a proper appraisal it is essential that Government make a general statement of policy on the financial and other obligations of the various public enterprises. This is as necessary to formulate the financial framework for each enterprise as it is to prevent unfair criticism of enterprises in the public sector.

To make a fair assessment of the working of the public enterprises, it is important to draw a line of demarcation between the responsibilities of the management and the Government. Government exercise a range of controls over a public enterprise and the management has to function within the framework of these controls. It will thus be fair to judge the performance of the management in the light of these constraints on its actions. The performance of a public enterprise should be evaluated in terms of the success achieved by the management in the following spheres and in the order indicated below :

- (a) furthering of the non-commercial objectives of the enterprise as specified by the Government;
- (b) furthering of the commercial objectives of the enterprise and maximisation of profits subject to (a) and within the constraints of Government directives;
- (c) improving the quality of products and services; and
- (d) effecting economy and efficiency in the use of resources (men, materials and money).

To a certain extent, there is inter-dependence between some of the above criteria. The test of profitability has been put second to that of the fulfilment of non-commercial objectives, since public undertakings are expected to be run in the collective interest and their very creation is based on considerations other than mere profit. However, there is a good case for the public enterprise in a developing country to go in for a reasonable profit making. The third and fourth criteria follow the profit criterion. It is interesting to note that the reduction of costs in certain fields may come into conflict with some of the known commercial objectives, for example, a reduction in costs caused by retrenchment of labour or automation, or a reduction achieved at the expense of the quality of product.

The setting up of a sophisticated investigatory apparatus within and outside the public enterprise, for a comprehensive and systematic measurement of efficiency, may not be a practicable proposition in the immediate future. However, it is a necessary and desirable objective for which preparatory steps should be taken to build up an organization of trained personnel. To begin with, simple and ready yard-sticks should be evolved and standardised, and the public enterprises should be required to report their performance on the basis of such standard pattern that will be of use to themselves as well as to outside agencies.

For the proper functioning of any enterprise it is essential that the management itself is primarily responsible for measuring the efficiency of its operations. Each undertaking must have an adequate apparatus for

regularly exercising efficiency control. The principal elements of such an efficiency control system, broadly speaking, consist of performance budgeting, cost accounting, work study, materials management and market research.

At present there is no expert external organization for carrying out systematic appraisal. The arrangement under which inspection teams are to be set up by the Administrative Ministries in consultation with the Finance Ministry to conduct periodical inspection is not the best method for evaluating managerial efficiency. The need is for a standing expert organization which can gain continuing experience of this type of work and which can take up the work of appraisal periodically and in an *ad-hoc* manner. Audit Boards have been suggested for periodic and systematic appraisals of managerial performance.

The Audit Boards would have to augment the expertise of the auditors with the assistance of economists, management experts, statisticians, etc., and also those who have had the experience of work in public enterprises. The Audit Boards will have to act at all times with due realisation and full understanding of their own limitations, that their task is only to evaluate managerial performance and advise the Government and the managements of public enterprises and not to attempt to lay down management policy for the enterprises or the Government.

The Study Team has made a note of a good deal of forceful criticism against the present system of audit of the accounts of public enterprises. The salient points emerging from this criticism are given below : (i) The existing multiplicity of external audit leads to considerable waste of time and effort for the management since it has to reply to detailed questions and objections raised in successive examinations by the professional auditors and the Government auditors. (ii) Government auditors, particularly the lower staff, do not have sufficient appreciation of the commercial nature of the public enterprise and often raise questions and objections of a nature that might have some value in the case of the Administrative Ministries but appear trivial in the case of commercial undertakings. (iii) Undue importance is attached to the audit function as a whole and to the observations made by the auditors after the event with the advantage of hind-study. (iv) Too detailed and continuous audit dampens the initiative of administrative managers, forcing them to take a more cautious approach and restricting the scope of delegation of powers. (v) At present the auditors do not have the necessary expertise or experience to undertake an adequate and systematic appraisal of managerial efficiency.

It is necessary to revise the existing multiplicity of audit arrangements as well as bring about a necessary reorientation in the attitude of

Government auditors, to conform to the special requirements of the public enterprises. A full consideration of the possible alternatives reveals that it is not possible to effect these means without a radical change in the existing system. The Study Team also has felt that it will not be advisable to do away with the Comptroller & Auditor General's audit altogether. In addition to considerations of public accountability, the fact remains that the Directorate of Commercial Audit (a special organization set up by C. & A. G. in 1955 to take care of the work relating to industrial and commercial enterprises of the Government) has gained some experience of efficiency-cum-propriety audit.

From a study of the position obtained in other countries the Study Team has recommended the adaptation of the system of audit prevailing in France with certain suitable modifications. In France a statutory body, called Commission of Verification of Accounts, has been set up for the work relating to verification of accounts and the appraisal of performance of public enterprises. The work of the Commission is divided into five sections and each section consists of three magistrates of the Audit Court and two other members appointed by the Minister of Finance and Economic Affairs. The Commission has its own staff for verification work but includes a large number of officers deputed from the Audit Court. The aim of verification is not only to check the correctness and proper maintenance of the balance sheets, inventories, etc., but also to bring out the financial position of the undertaking and its future prospects. The Commission examines the commercial and financial management of the enterprise and suggests means including the changes required to be made in the organization and structure of the enterprise. The work performed by the Commission in France has been regarded as very useful and has the closest approximation to the type of systematic appraisal that should be made of the performance of the managements of public enterprises.

Thus, the Study Team has recommended that the work being done by the Directorate of Commercial Audit can be divided among four or five Audit Boards, each Audit Board dealing with a particular major area of enterprise like iron and steel, engineering, chemicals, trade, commerce and transport, etc. Each of these Audit Boards should have five members including three senior audit officers as common permanent members and the two part-time members should be appointed by the Minister responsible for the development of that particular industry. These two members need not be serving officials of the Ministry but may be selected from amongst the senior persons experienced in the work of public enterprise or from among experts in commercial or financial matters. The existing departmental set-up of the Directorate of Commercial Audit

should be utilised for providing the secretariat of investigating staff to the Audit Boards. The administrative control and the responsibility for running the organization can be vested in the three permanent members. It will be necessary to provide reorientation and training to the existing staff and to recruit certain specialists and experts like economists, statisticians, cost and chartered accountants. If an organization is to undertake the task of efficiency-cum-propriety audit it is essential that its staff should have the necessary expertise and specialisation.

Reports relating to individual undertakings should be discussed in the Audit Board in the presence of the representatives of the Ministry concerned in the public enterprise under examination and these reports need not be treated as confidential but should be presented through the controlling Ministry to Parliament. A large portion of the work, mainly regular, may be got done by the Audit Boards through the professional auditors. The work assigned to professional auditors should be clearly defined and distinguished from that done by the Audit Board's own staff. This will effectively minimise the chance of duplication. The Audit Boards can be really beneficial to the undertakings only when they function more for the constructive purpose of suggesting improvements than for focussing attention on the errors and deficiencies of management. Within this framework, an investigation by a body of persons having professional competence in audit work in co-operation with experts from outside will not only indicate the true financial status and prospect of enterprise but also will inform the management of the areas of possible improvements.

Public Investment Board. In 1972 the Government set up a high-powered Public Investment Board to speed up approval of public sector projects. All proposals for investment in public sector corporations or undertakings involving Rs 1 crore or more will be referred to the Board. The constitution of this Board is designed to remove some major shortcomings in the current procedure of scrutinising proposals for investment in the public sector. This procedure involves too many meetings at different levels and at different places which tend to delay the investment scrutiny. Moreover, the basic and broader issues get mixed up with the less important ones and cannot be brought up in clear focus to high decision-making levels sufficiently early. Besides, there is no fixed and identifiable high level forum for investment decision.

The Public Investment Board will examine the broad contours of an investment proposal in the project formulation stage and will decide whether the feasibility report should be prepared. It will take investment decision on proposals for investment, and will also consider proposals for revision of cost estimates.

Seminar on "Profitability and the Public Sector"

In a seminar on "Profitability and the Public Sector" organised by Inter-Media Publicity Co-ordination Committee in March 1975, top managerial personnel in the public sector highlighted many constraints forced on them by the Government. There was a forthright exposition of the handicaps under which they had to function. They underlined the need for evolving a specific policy for the various undertakings within the overall framework of the Government's declared objectives. Some of the participants even suggested that instead of waiting for a White Paper from the Government, which spelt out the directions in which these undertakings should aim their policies, the heads of these enterprises should frame a statement of objectives for the public sector undertakings as a whole and get it approved by the Government. The responsibility for decisions in the enterprises was not clear. It rested partly with the company. When difficulties arose each was an alibi for the other and this was not a situation altogether in the interests of the company. Freedom for pricing did not exist and the directions issued by the Government were based on theoretical solutions. Similarly, a policy of industrial relations in public enterprises was generally absent. The procedure for getting the approval of the Government for wage agreement was cumbersome and the delays in getting the approval affected the credibility of the management.

Compulsion of standardisation among public undertakings was a serious constraint. A case was cited for the setting up of the co-ordination committee for diverse industries in Bangalore—HMT, HAL, ITI, Bharat Earth Movers and Bharat Electronics. This meant that uniform scales of pay had to be evolved for these undertakings involving diverse skills.

A clear definition of the objectives of the public sector in the context of socio-economic changes was necessary. Once this was done, the enterprise should be allowed freedom of action within the framework of the national policy. There was lack of trust with the result that necessary interference in the day-to-day management limited the freedom of action of management. Attention was drawn to the plethora of audits which a public unit was subjected to.

A suggestion was made that top management personnel of the public sector enterprises should set for themselves the yardstick by which they could judge their performance. They should put out, in a coherent statement, the various achievements of their units in the past several years as also chalk out their future plans. This should be placed before Parliament for approval.

Success of the public enterprises, it was argued, depended mostly on the continuance of the same persons on the boards of directors for a reasonable length of time. The basic problem was lack of trust on the part of the government in the public sector managements. The modern business administration concept was "management by objectives". In the public sector, it was "management by peeping". Some administration official or agency was all the time peeping over the shoulders of the public sector manager. Thus the back-seat drivers were increasing. The guidelines issued from New Delhi were vague and impracticable and sought to be applied uniformly to all units covering an entire spectrum of the public sector.

Attention was drawn to constraints like governmental interference in matters like recruitment, transfers, promotions, selection of agents or dealers in the case of marketing companies. Surprisingly, where there should be interference, there was none. For instance, there was no agency to set targets for achievements, criticise plans, lay down or approve long-term policy. Due to this vacuum, a number of public sector undertakings were "floating without guidance in an open sea". The total absence of a training programme for the various cadres in public enterprises was also emphasised.

Joint Sector and Financial Management

The concept of joint sector appears to have found wide-ranging acceptance after it was put forward by the Industrial Licensing Policy Inquiry Committee, popularly known as the Dutt Committee, in 1969, in the context of the large financial support extended by public financial institutions to private business, particularly the larger houses. "The joint sector would, in our view, include units in which both public and private investment has taken place and where the State takes an active part in direction and control."¹

The joint sector can be an effective form of organisation for larger enterprises, not only in the private sector but also in the public sector, to function efficiently and profitably in the present economic, political and social environment. It can be made a reality by adopting any of the following three methods: (i) converting loans/debentures, given to the private enterprises by public financial institutions, into equity; (ii) utilising the present equity holding of public financial institutions in private sector undertakings to enlarge the role of the State in their management; and (iii) offering minority ownership to public in selected public sector undertakings. We would examine the implications and problems of these three types of joint sector undertakings.

Conversion of loan into equity

It may be recalled that the Dutt Committee investigated the cases of large enterprises receiving substantial assistance from public financial institutions and found that in respect of 29 large houses, the assistance provided by these institutions, on an average, accounted for as much as 54 per cent of the total project cost. In some cases the share was as

¹ Report of the Industrial Licensing Policy Inquiry Committee, p. 186.

high as 89 per cent. Therefore, the Committee recommended that the projects which received financial assistance of significant magnitude from the public sector should be treated as joint sector projects and the public financial institutions should in such cases have the option to convert the full or part of their assistance in the form of loans/debentures into equity so that the society could get a proper share in the benefits accruing from such projects. Further, public sector financial institutions should also participate in the management to a greater degree than hitherto, particularly at policy levels.

The Committee also emphasized that when public sector financial assistance on any significant scale was provided for the private sector, not only should appropriate share in the benefits accruing from the project after it was completed be made available to the State, but the project should also necessarily be treated as belonging to joint sector, with proper representation for the State in its management. This purpose might be achieved by the financial institutions insisting on the whole or part of their assistance in the form of loans and debentures being converted into equity at their option. This would ensure that the management of industry was conducted according to the overall policies laid down by the Government and that public interest and not only private profit would guide the operation of the large undertakings in the private sector. This would also be an important means of curbing the increasing concentration of economic power. The development of joint sector on these lines would be an important instrument for the achievement of the objective to minimise concentration of economic power and be more effective than licensing.

Guidelines for convertibility clause. In May, 1971, Government issued guidelines in pursuance of its earlier decision giving public financial institutions a greater degree of participation in the case of projects assisted by them. The Government directed that a convertibility clause should normally be written in all cases where the aggregate financial assistance to a concern by the public financial institutions exceeded Rs 50 lakhs. Where the assistance was below Rs 25 lakhs, the convertibility clause need not be written as a measure of policy unless the financial institutions themselves so decided on commercial ground. A convertibility clause might be written at the discretion of the financial institutions in cases where the aggregate financial assistance to an industrial concern exceeded Rs 25 lakhs but did not exceed Rs 50 lakhs. The willing consent of the assisted industrial concern had to be built into the agreement.

If the financial institutions, in consultation with the Industrial Development Bank of India, exercised their discretion in a case where the assistance was between Rs 25 lakhs and Rs 50 lakhs, to waive the writing-in of a convertibility clause, they had to record their reasons for doing

so. The public financial institutions included the IDBI, the IFC, the UTI and the ICICI. The financial institutions had to exercise their judgment in consultation with the IDBI to see that the ratio between debt and equity of the assisted industrial concern was reasonably maintained at all times in the interest of the shareholders and the financial institutions which already held or were going to hold investments in the concern.

The guidelines did not contemplate conversion of loans given in the past to any industrial concern. Thus the conversion of loans, given by the financial institution, into equity would be made only in the future within the framework of the policy outlined therein. In regard to participation in management, the institutions would nominate directors to represent them on boards of management of the assisted concerns. The nomination of directors was intended not only to safeguard the interest of the institutions but also to serve the interest of sound public policy. The IDBI, in consultation with the other institutions, had to prepare a panel of suitable persons for nomination as directors on the boards of assisted concerns.

The objective of the guidelines was obviously anti-monopolistic as they normally applied only to loans exceeding Rs 50 lakhs. The guidelines issued to the financial institutions laid down the circumstances in which they should provide for options to convert their loans into equity. The convertibility clause was written into loan agreement so that the borrowing firm knew in advance that there was a possibility of the lending institution exercising such an option. Though there was no danger of earlier loans being converted into equity capital, but the question might arise in such cases if there was any default in their repayments. The rationale of the clause was that when a financial institution made a loan available it was entitled to share in the profits of the company when it became profitable.

Considerations for conversion. (a) The extent to which equity would be enlarged through conversion of loans would depend on the lending institution's judgment as to what ratio between debt and equity would be reasonable in the circumstances of the particular industry and the particular concern. The optimum debt-equity ratio varies from one industry to another. It vitally affects the return to the equity holders which should be in consonance with the magnitude and risk of investment and the period of gestation. A proper balance should, therefore, be maintained between debt and equity in order that the return on equity may be maintained at levels considered reasonable. Thus financial institutions have to take a view about profit-earning capacity of each company and also the debt-equity ratio and on that basis decide the extent of loan to be converted into equity.

(b) Another consideration will be to maintain the joint sector character of the project concerned and this objective may be taken into account while deciding on the extent of loan to be converted.

(c) The price payable for equity shares at the time of conversion becomes an important consideration and should be specified in advance at the time of granting the loan. This involves an exercise of judgment on the potential intrinsic value of the share.

(d) The option to convert the loan into equity should be kept open for a reasonable period of time so that institutions may have adequate data at their disposal regarding the profitability of the project. No uniform rule may be feasible and the institutions have to decide the period to be specified in the loan agreement according to the circumstances of each case.

(e) It is interesting to note the period for which an institution can hold the equity shares of an assisted concern. The IFC is precluded by its constitution for holding shares for periods longer than seven years except with the approval of the IDBI.

(f) The interest of institutional investors—the LIC and the UTI—may not always coincide with that of the IDBI, the IFC and the ICICI which are development banks in converting loans/debentures into equity. Development banks can hardly afford to get their funds locked up in equity investment for a longer period while this is a legitimate activity for institutional investors.

Change in attitude. The concept of the joint sector, which is still far from being fully defined and made a practical proposition, appears to have lost much of its fearfulness for business people. In fact, many industrial houses appeared to be beginning to look upon it as a useful device to go forward and expand their interest and role in the economy. When the proposition was first made, the executives of the public financial institutions were themselves sceptical about it as it would involve additional responsibilities on their part to examine the pros and cons of the decision to convert loans into equity. Businessmen denounced the idea as amounting to back-door nationalisation.

It is interesting to note the references made relating to joint sector at the annual session of the Federation of Indian Chambers of Commerce and Industry in March 1972 and the demonstrative display of understanding between the Government and the business. The FICCI President described joint sector idea as “a welcome innovation in the context of need for economic growth and the social and political environment prevailing in the country.” The joint sector means closer *liaison* between the private sector management and the public financial institutions which

extend financial support. In this form, it does not remain a frightening proposition nor does it smack of back-door nationalisation. It would appear that just as, after the country gained independence, foreign capital became keen on collaboration arrangements with the Indian capital as the safest form of investment, Indian capital is now beginning to see the virtues of the joint sector.

Is the joint sector an objective in itself or is it a means to an end? To be precise, is it a prelude to large-scale nationalisation of industries? That the joint sector is not going to be the thin end of the wedge is clear from what the Prime Minister said in the Parliament in the Budget Session in March 1972. She emphasized that while the Government would not hesitate to nationalise any industry in the national interest, the pattern of take-over had to fit in with the objectives that were sought to be achieved. The use of the word "pattern" is worth noting. While in some cases total nationalisation would be necessary, in some others it would be desirable to take over only the control. The Government's motive in translating joint sector into practice is not eventual nationalisation although in a few cases it might lead to that.

The objective of eliminating the growth of monopolies and concentration of economic power in a few hands has resulted in radical changes in Government policy. Having announced that these policies were evidence of the Government's resolve to bring in an egalitarian society, there can be no going back on them. A way has to be found by which this objective can be reconciled with the imperative need for increased production which, in the prevailing situation, must obviously come from the large industrial houses. The joint sector provides the most acceptable and rational way to achieve this objective. It means closer *liaison* between the private sector management and the public financial institutions.

Philosophy behind the fiscal policy. As the internal resources of the private sector are being increasingly denuded because of the withdrawal of major fiscal concessions to it and the rising costs in recent years, it would be forced to turn more and more to the public financial institutions for funds, particularly if it wants to take advantage of the large public investments for its expansion and diversification. The massive increase of Rs 710 crores in the public sector outlay provided in the Budget for 1972-73 for stimulating growth may have a catalytic effect on private sector investments. But a situation has been created by the Government for the private corporate sector by circumscribing its capacity to enlarge its own resources. It will have to depend increasingly on public funds. Since public financial institutions are empowered to convert their loans to private companies into equity, it appears that the Government has used

the budget (1972-73) to clear the decks for putting into practice the concept of joint sector in industry.

Problems of conversion. Certain difficulties are going to be faced by the public financial institutions in the actual implementation of the conversion programme. The most important is the rate at which the loan would be converted into equity. If conversion is at par, the financing institution would be a gainer, particularly if the assisted company happens to have a high rate of growth in its profitability. In heavy investment sectors, the financial institutions will have to see that the amount of loan to be converted into equity is not so large as to unduly depress the return on equity and make it unattractive to an ordinary shareholder. At the same time, it should not be so small as to give too high a return on such shareholding which may provide little benefit to the financial institution.

The conversion scheme has to apply only to loans which would be granted in the future. It, therefore, dilutes the objective which the Dutt Committee had in proposing the scheme. Its recommendations were intended to rectify the serious deficiencies that crept into the corporate financial structure. The conversion clause, as it is now contemplated, makes no attempt to rectify the defects that have occurred. The conversion device should have also been used to reduce some of the monopoly power that has grown up in the past. By excluding the loans in the past the advantages secured by such loanee concerns are retained. This goes contrary to the principle of equity and perhaps was not the objective of the Committee in suggesting this scheme.

There has been a criticism that conversion right will adversely affect the interests of the equity-holders in the assisted concerns. It is argued that they would be denied dividends during the initial periods when financial institutions might earn interest on their assistance and later on they would get reduced dividends when the project reached profitability stage due to dilution of equity conversion of loans/debentures. But this criticism ignores the fact that the stage of profitability could not itself be reached but for the substantial loan assistance given by the institutions. Moreover, the lending institutions provide the finance at a favourable rate which is usually lower than the opportunity cost of funds. Further, institutional approach is not of mere money-lender but that of one who is interested in the development of the economy.

It is suggested that rights of conversion might discourage investors from subscribing to new issues and might also lead to violent fluctuations in the stock market. But the exercise of rights by the financial institutions has due regard to the financial structure of the assisted con-

cerns and active participation in their management should bring in more savings into the capital market instead of affecting adversely the investors' confidence.

It is contended that financial institutions will not gain much by the exercise of conversion rights and it would be needless to go through this exercise. But a review of some past cases indicates that there is no need to take such a pessimistic view. Moreover, participation in management is an equally important objective in addition to the conversion of loan into equity.

The policy of discretion to the financial institutions, with prior approval of the Government, has been adopted because Government is not clear if the objective of the conversion is only to give the financial institutions a share in the profit of the venture they assist, or bring them under Government control as well. This basic point has been left to a new set of guidelines to be issued in the near future. If the objective is only profitability, the development banks may be given the discretion to decide the extent to which they should exercise the conversion option and the time and manner of disposing of their equity holdings. But indefinite retention of equity for control may also be an objective of the Government if not of the development bank.

There may be a problem to find the desired number of persons for appointment on the boards of management of assisted concerns. The financial institutions' own staff would be clearly inadequate for this purpose. The IDBI has been asked to prepare a panel of qualified persons for nomination to the boards of various assisted concerns. Would not such a panel give the party in power a new source of disbursing patronage? A lot of restraint is required in this direction. Appointments should be made keeping in mind the wider national interests in place of narrow party affiliations.

The Government must set up a separate agency to tackle the problem of control and direction of the assisted concerns and leave the development banks to their role as promoters and financiers of industrial units, and institutions like the LIC and UTI to their role of satisfying the needs of policy-holders and the unit-holders, respectively.

Utilization of existing equity holding

The equity holding of financial institutions, particularly of the LIC and the UTI, should be effectively used for enlarging the role of the State in the management of private sector industry. This would ensure that the management of industry is conducted according to the overall policies laid down by the Government. This would also help in efficient opera-

tions of the large industrial undertakings in the private sector for the larger public interest and not merely for private profit. Often, public financial institutions have provided a part of the equity and, on the basis of such contribution, grant financial assistance in the form of loans. Further, a significant proportion of the amount of the shares underwritten by the financial institutions devolved on them. In addition to underwriting, the LIC and UTI buy in the market and hold a large number of shares and debentures.

Normally the LIC and UTI follow the policy of not only not interfering with the internal management of the company in spite of holding significantly large blocks of shares, but also usually that of supporting the existing management. Therefore, the existing management prefer that the LIC and UTI should acquire and hold large number of shares in their concerns. They thus become very convenient and helpful sleeping partners. Due to this reason, in many units management can exercise control with a smaller proportion of equity. It has been found that in many companies stakes of management in the form of its shareholding become very low, increasing thereby the risk for sleeping holders of substantial equity.

This has meant that control over large projects has been obtained by their promoters without adequate contribution of capital funds by themselves and their collaborators. They have not been able to mobilize adequate funds from the capital market. There is little attempt to have adequate representation on the Boards and even where such representation is obtained, the representatives often used to be from private industry. This policy of self-denial together with nominations of interested persons could not but lead to undue preference being shown in the assistance granted by these institutions.

There is need not only of protecting the interest of financial institutions but also of the co-ordinating efforts for planning and development of the key industrial sectors by transferring shares in the assisted concerns to a centralised agency to be formed as one holding company or more holding companies, if considered desirable, on sectoral basis. Financial institutions need not use back-door but front-door to get proportional representation on the Boards.

Considering the forms and scale of assistance provided by financial institutions and institutional investors in the public sector, it can be said that in India there is either public sector or joint sector. Pure private sector as such does not exist. There is need of gaining from the Italian experience of public enterprise in the form of IRI and ENI. It would help in co-ordinating the activities of the public sector and the joint sector undertakings. Government may find it desirable to set up a separate Ministry of State Holdings to deal with such enterprises.

In some cases Government may have to acquire marginal amount of shares in order to make its holding a controlling one. This acquisition can be made either in the open market or through direct negotiations with industrial units. Preparation of a list of equity holdings of the various financial institutions—industry-wise and company-wise—would be found helpful. This list should be reviewed from time to time to make suitable adjustments after keeping track of the progress of the companies in the strategic sector. Co-ordinated efforts for planning, control and investment in such enterprises can thus effectively be made. Government can achieve this very objective in some cases merely by appointing its nominees on the Boards of invested companies without acquiring additional shares. Each case would have to be dealt with on its merits without attempting to have a uniform and straight-jacket policy. This work requires a vigilance to be entrusted preferably to a holding company, thereby the financial institutions and institutional investors would be left free to respective roles of financiers, underwriters and investors.

Offer of minority ownership to public

Joint sector enterprise is expected to have an efficient functioning due to greater freedom and initiative of management; better personnel policy relating to matters of recruitment, training and promotion; and more effective accountability system. Management in such undertakings gets ample opportunity for scanning and monitoring the environments and develops high sensitivity to changing internal and external environments. Such enterprises can have a faster rate of growth because of absence of official delay in having licences, allocation of foreign exchange, import of capital goods, and credit allocation. All these advantages are happily blended with private initiative and efficient managerial practices.

The chairman of Gujrat State Fertilizer Corporation in his speech at the Tenth Annual General Meeting in June 1972 emphasised that "it was a bold and indeed a unique experiment, in that your company was the first to be constituted in what is come to be known as the joint sector, in which the Government of Gujrat, large financial institutions like the IDBI, the IFC, the LIC and the ICICI, banks, co-operative societies, agriculturists and other members of the public have invested their money in a spirit of mutual trust and confidence. Such trust has proved to have been well placed." Cochin Refinery is another example of such a successful experiment.

However, the Finance Minister rejected a suggestion for throwing open the shares of public sector undertakings to the public and workers in these undertakings when replying to questions in Parliament in July 1971 on the guidelines for the conversion of loans into equity. He observed,

"we don't want to convert the public sector into a joint sector, we want to see that this private sector is converted into a joint sector." The reluctance on the part of the Government to offer shares to public is difficult to be appreciated. Are the persons associated with the organisation and management of these enterprises afraid of facing the public? By throwing open the capital of public sector companies to a limited extent, Government would help in introducing joint sector and removing the present artificial classification of private and public sectors.

Joint sector enterprises would help in mobilising untapped resources. Small investors would get opportunities of channeling their funds in safe and sound investment. At the same time, public participation would release resources of the Government for investment in other development activities.

• There has been a significant shortage of good scrips for investment in the recent years. Even public agencies like the LIC and the UTI could not find suitable equity investment for their surplus funds. Capital market has been experiencing a shortage in the supply of good equity shares. Under such conditions an offer of some selected securities by public sector undertakings would be helpful to create and sustain a healthy climate in capital market.

Interest in equity investment is increasing in the growing middle class partly because of greater awareness about this form of investment and partly because in a period of continuous inflation it is desirable that the people should invest in securities as a hedge against inflation. Further, instead of distributing to workers cash bonuses from profits which may further accelerate the inflationary situation, an agreement can be arrived at for converting some part of the bonus into equity shares. This will create a close association and deeper interest among the workers in the undertakings where they are employed.

The operations of some of the joint sector enterprises like the GSFC and the Cochin Refinery have attracted public attention because of their efficient and profitable functioning.

A feeling is gaining momentum that such joint enterprises should be organised in accelerating the rate of economic growth and the investing public would act as co-partners "in the bearing of risks and uncertainties, and in the sharing of toils and travails connected with expansion and development." A large number of people would become interested in the activities of the Government. Public participation would generate better understanding and appreciation of the processes involved in the industrialisation of the country and to that extent they help to promote and speed up industrial development. Investment by the public has the

wholesale effect of making management of these enterprises more responsive to the shareholders. The accountability system for public sector enterprises becomes more effective and meaningful with ownership of public in such undertakings because these enterprises are made directly accountable to the investing public, besides their accountability to the Ministry and the Parliament.

Mr. Prakash Tandon, in his statement as the Chairman of the STC made at the 15th Annual General Meeting, observed that a handicap to management and shareholders alike of public enterprise was perhaps the absence of market evaluation mechanism that placed a value on shares day by day. Such an evaluation was firmly related in the long run to the performance of a corporation and its success or otherwise in the return it obtained on the resources it employed. Some thought had to be given to create a new style of shareholding in the public undertakings, broader based and well spread over employees and the public in the shape of "popular capital". To prevent speculation, several measures could be adopted: small-sized and limited holdings, control and transferability, etc. A share in equity would give employees not only a personal involvement but also a responsibility for the affairs of the corporation at present sometimes missing on account of a near total job security. To small public shareholders it would be a new form of saving; to the Corporation, a new source of funds; and to the management, a new dimension to their accountability. Since performance would be constantly evaluated in terms of earning capacity and share values, it would create in management a professional outlook and financial discipline.

Promotion of industrial enterprises under the joint sector would go a long way in finding a right solution to the problem of growth without concentration of economic power which becomes a retarding factor whether it exists in the private sector or in the public sector. Joint sector enterprises, in fact, involve a practical implementation of the concept of mixed economy and "avoid a mixed-up economy". In an atmosphere of licences, permits and Government controls, the concept of joint sector has found favour with the private sector because "nationalisation of talent in private sector is a much better thing than nationalisation of industries."

With the massive assistance given by the financial institutions to industrial undertakings in India, there are very few large groups left which have the majority holding. Having taken over an increasingly larger share of the equity in the private sector, it is inevitable that control and decision-making will move into Government hands. Similar changes have been occurring all over the world. We should seriously

examine the Italian model of industrial control through IRI and ENI. It will require our industrial economy to be broken up into a limited number of conglomerates, planning at the national level and having broad-based holdings. These conglomerates will be somewhat like the much talked about holding company to accommodate both the private and public sector units. While the guidelines for the conglomerates will be drawn up at the national level, the constituent units—whether private or public—will remain semi-autonomous. The conglomerates should be run by professionals in their respective disciplines and the shareholdings should be highly broad-based.

Public Deposits

Deposits with companies have come into prominence in recent years. Of these the more important are the deposits accepted by trading and manufacturing companies. Such deposits have been a traditional source of finance in India. The Indian Central Banking Enquiry Committee in 1931 recognised the importance of public deposits in the financing of cotton textile industry in India in general and at Ahmedabad in particular. More recently, since the Third Plan, the growth of such deposits has been considerable. As a result of general credit stringency, companies attempted to raise funds needed by them directly from the public by offering interest rates on deposits placed with them well in excess of rates for deposits of comparable periods paid by banks. While to the depositor the rate offered is higher than that offered by banks, the cost of deposits to the company is less than the cost of borrowings from bank. Moreover, the availability and volume of bank credit are restricted by considerations of margin, security offered, periodical submission of statements, etc. The credit available to companies through deposits is not hampered by such considerations. There is no question of margin or security. Further, these deposits are available for comparatively longer terms than bank credit. This virtually means that companies cut down one set of intermediaries and borrow directly instead of through the bank.

Companies find such deposits very attractive : first, the cost of such deposits is lower than the rate of interest charged by the banks; secondly, they are unsecured; thirdly, no questions are asked about their uses; and finally, deposits are used quite often for purposes for which the companies cannot get credit under Government's anti-inflationary policy. As a matter of fact, the Government can be said to have perpetuated the practice by allowing even public sector companies to invite deposits from the public. The Karnataka State Electricity Board, for instance, has set the pace by advertising for public deposits.

Growth of company deposits. The latest information available regarding the extent of company deposits is upto March 31, 1971, according to a survey published in the *Reserve Bank of India Bulletin* of September 1973. The survey reveals that the amount of deposits and exempted loans in the non-banking, non-financial corporate sector increased from Rs 229 crores at the end of March 1966 to Rs 432 crores at the end of March 1971 (Table 1). There were 27,343 companies classified as trading or industrial companies engaged in non-financial activities at the end of March 1971. The number of reporting companies which held deposits from the public or had obtained unsecured exempted loans which were outstanding as on March 31, 1971 was 1,472. Out of 1,472 companies, Government companies were only 5 having the public deposits of Rs 2.9 crores, the rest were non-government companies out of which public limited

Table 1

*Amount of Deposits/Exempted Loans in the Non-banking
Non-financial Corporate Sector—March 1966 to March 1971*

(In crores of Rs)

	Rs
1966	229
1967	311
1968	354
1969	401
1970	451
1971	432

Table 2

*Distribution of Deposits as on March 31, 1971 :
According to the Types of Companies*

(Amount in crores of Rs)

	No. of companies reporting deposits	Amount
(a) Government companies	5	2.9
(b) Non-government companies	1467	416.1
(i) Public limited companies	839	351.5
(ii) Private limited companies	628	64.6
	1472	419.0*

*Excluding foreign loans.

companies (839) had deposits of Rs 351.5 crores and private limited companies (628) had deposits of Rs 64.6 crores (Table 2).

A major portion of deposits was accounted for by a few larger companies. For instance, 339 out of 1,472 reporting companies (23 per cent) held 77 per cent of deposits as on March 31, 1971. The bigger companies appeared to be mainly concentrated in Maharashtra. The RBI Survey of company deposits has noted some undesirable aspects. Over three-fourths of such deposits were tapped by a few large companies, mainly those located in metropolitan financial centres like Bombay, Madras and Calcutta.

The total public deposits and loans from shareholders are estimated to have increased to more than Rs 1000 crores at present. Some people even put the figure at Rs 1,200 crores. However, no firm figures are available. As indicated earlier, the latest available firm figures relate to March 1971 published in the RBI Bulletin of September 1973. The Reserve Bank conducts annual survey of deposits with non-banking companies. Why should the results be so much delayed? One of the reasons is that the response of the companies is very poor. The difficulty could be overcome by prescribing a simple return—rather than an elaborate current return—calling for only bare minimum information. Simplifying the return and increasing the perspective from the yearly to quarterly will considerably facilitate periodical publication of non-banking deposits data of the RBI.

Limitations. The main objections to the public deposits are that (i) they distort the interest rate pattern; (ii) they encourage non-priority sectors of production; (iii) they are unsecured deposits and in the event of a failure of the company, depositors have no assurance of getting their money back. Increasing reliance on this form of finance by the corporate sector is considered as the surest way to defeat the very purpose of restrictive credit policy of the Reserve Bank. In fact, the very first step taken by the Reserve Bank in 1964 to control such deposits was necessitated by their sudden spurt consequent upon the general policy of credit restraint and enforcement of selective credit control mechanism.

An unfettered growth of public deposits has been viewed with great concern as it diverts bank resources to the non-banking sector. The growth of company deposits at the cost of bank deposits has been disputed by some who think that the growth in company deposit, in practice, does not necessarily lead to a diversion of deposits from the banking system. The Banking Commission in 1972 stated: "Eventually, these company deposits would find their way into the banking system *via* tax payments, payments to creditors or as working balances of companies; the diversion, if any, could

not be more than a share of currency in the total monetary resources. Non-bank deposits are thus not completely lost to the banking system. If anything, to the extent that such deposits activate currency hoards, they tend to increase the overall resources of the banking system." (p. 104).

It has been argued that very few bank depositors are lured by high rate of return as they attach more importance to security. Further, when idle cash balances with individuals are converted into company deposits, they activate currency hoards and thus help swell bank deposits.

A substantial increase in company deposits from the public poses a threat not so much to bank deposits, as is popularly believed, but to credit planning and effective monetary policy. While the impact of company deposits on bank deposits is negligible and sometimes even favourable, their implication for credit distribution and credit planning could indeed be serious and even disastrous. It can distort Plan priorities for credit allocation and blunt the edge of monetary policy—especially dear money policy. The objective of reducing sectoral and regional imbalances in credit allocation could be defeated; and actually the regional disparities might be accentuated. Thus, the entire credit planning exercise may be thrown over-board. The Reserve Bank's regulations are not effective. In fact, certain non-priority companies should be prohibited from accepting deposits.

There is need of introducing discipline by suitably modifying the Reserve Bank directions. The Chairman of the State Bank of India recently observed : "Many of the companies now borrowing from the public are also customers of banks. The projections of financial plans of the borrowing companies should include an idea of the amounts of public deposits which the companies intend to take. The periodical cash flow statements submitted to the lending bank should properly reflect the inflow of public deposits. If this is larger than originally envisaged, a corresponding reduction in the company's credit limits would be justified and necessary in order to subserve the objectives of the monetary policy."

Tinkering with the peripheral aspects of the problem has not in any way reduced the attractiveness of deposits from the public. Even in respect of protecting depositors' interests, the Reserve Bank direction has only touched the fringe of the problem. The Reserve Bank itself has made it clear that its directions are no guarantee against any company coming to grief through mismanagement or otherwise. The increasing reliance of companies on deposits from the public has, in fact, weakened the capital market.

RBI Regulations. Deposits of non-banking companies attracted official attention only in 1964 when the RBI was empowered to regulate

the quantum of company deposits. The complication of official control over company deposits has indicated a significant change over the last eleven years. The first RBI survey of company deposits formed the basis of the official regulations issued by the Bank in 1966. Under the directions issued to non-banking non-financial companies which came into force from January 1, 1967 such companies could accept deposits to the extent of 25 per cent of paid-up capital and free reserves—subsequently clarified as 25 per cent of the paid-up capital and free reserves as diminished by the balance of accumulated losses, if any. However, deposits in the form of unsecured loans guaranteed by directors, deposits raised from shareholders, etc., were exempt from the purview of the directions. With effect from January 1, 1972, the latter category of unsecured loans/deposits was also brought within the purview of the directions and a separate ceiling of 25 per cent of the paid-up capital and free reserves as diminished by the balance of accumulated losses, if any, was prescribed. In January 1975, it was decided that the ceiling of 25 per cent in respect of deposits of unsecured loans guaranteed by directors, deposits raised from shareholders, etc. should be reduced to 15 per cent. Non-banking, non-financial companies having deposits of these categories in excess of 15 per cent of their paid-up capital and free reserves are now required to wipe out the excess by December 31, 1975. With the publication of detailed rules under Section 58(A) of the amended Companies Act, 1974, statutory banking has now been given to the directives of the Reserve Bank governing public deposits by non-banking companies. Further, the Reserve Bank is vested with more powers to exercise control over non-banking companies accepting deposits from the public under the Reserve Bank of India (Amendment) Act, 1974, which came into effect on December 13, 1974.

The RBI regulation of public deposits has six main aspects :

(i) There is a ceiling on the quantum of deposits in terms of paid-up capital and reserves by the company because undue accumulation of short-term liabilities in the form of deposits can lead a company into financial difficulties. In the beginning the definition of deposits was quite narrow and excluded unsecured loans accepted from the public and guaranteed by the directors. Now the term deposit covers “any money received by a non-banking company by way of deposit or loan or in any other form but excludes money raised by way of share capital or contributed as capital by proprietors.”

(ii) The second aspect of the Reserve Bank's regulation is the limit on the period of such deposit. Formerly, in order to avoid direct competition with short-term public deposits, companies were prohibited from accepting deposits for a period of less than 12 months. But the 1973 amendment reduced the period to less than 6 months. The short-term deposit

is now pegged down to 10 per cent of the aggregate of the paid-up capital and free reserves of the company while secured and unsecured deposits shall not exceed 15 per cent and 25 per cent, respectively, of the paid-up capital and free reserves.

(iii) The Reserve Bank has made obligatory on the part of the companies accepting deposits to regularly file returns, giving detailed information about them, their repayment, etc., so that the Reserve Bank can verify whether the companies adhere to the restrictions. However, such statements are not filed or filed late and the Reserve Bank's action to prevent a defaulting company from accepting any deposit fails to afford any protection to existing depositors.

(iv) The Reserve Bank has stipulated that while issuing newspaper advertisements (or even the application forms) soliciting such deposits, certain specified information regarding the financial position and the working of the company must accompany. This clause is often misused as such advertisements often carried words like "as per Reserve Bank directives", thereby giving a wrong impression that these deposits are actually governed by the Reserve Bank. Now such advertisements would be illegal and attract penal provision prescribed in this behalf. Similarly, the catalogues and hand-outs issued by brokers stating that the companies mentioned therein had complied with Reserve Bank directives would also attract the penal provision.

(v) The Reserve Bank has entrusted the auditors of the companies with additional responsibility of reporting to it that the provision under the Act had been strictly followed by the company.

(vi) The Reserve Bank has issued a brochure "RBI Directives and Company Deposits" in order to clarify its role in protecting depositors. The Bank has reiterated that the prospective depositors should not presume that the deposits or loans are fully protected or are absolutely safe merely because the companies claimed to have complied with the RBI directives and that they should not presume that the Reserve Bank can come to their rescue in the event of failure of a company to meet its obligations.

Government's concern for increase in deposits. The large scale diversion of deposits from State-owned agencies like the nationalised banks, the UTI, the LIC and the provident fund is posing concern to the Government. The gravity of its concern has been enhanced by the increasing number of complaints of frauds, malpractices by some of the companies that collect deposits by offering attractive rates of interest. The budget proposals for 1975-76 made provision to exercise financial discipline in respect of the use of this sort of finance from public deposits. In computing the taxable income of non-banking non-financial companies, only 85%

of the interest paid by them on public deposits will be allowed as expenditure for tax purposes. This proposal is a fiscal measure with a monetary intent. The tax status of interest used to render debt funds a cheaper proposition than owned funds. The higher the tax rate, the lesser is the explicit cost of debt. But the disallowance of tax concession on 15 per cent of the interest expenditure would result in increasing the cost of public deposits. The effective rate of interest paid by a company to its depositors will now be higher because of the disallowance of 15 per cent interest. This additional tax will be paid out of the company's taxed profits. The increase in effective rate of interest, being borne by the company, would amount to $\frac{R \times .15 \times T}{(1-T)}$ where R is the rate of interest being paid to the depositor and T is rate of tax paid to Government by the company on its Re 1 profit. Thus for a company paying 12 per cent interest on public deposits and 66 per cent tax on its profits, the increase in its effective rate of tax would be $\frac{12 \times .15 \times .66}{.34} = 3.6$, i.e., overall rate would be $12 + 3.6 = 15.6$ per cent.

Further, the interest amount hitherto was liable to deduction of tax at source only if it exceeded Rs 400 at any one time. For circumventing this stipulation, depositors used to be paid interest on regular intervals, say, every quarter, an amount less than Rs 400. Depositors used to deposit funds at different dates so that interest accruals become payable at different dates. Deposits were also kept in different names. The Finance Bill, 1975 sought to provide that taxes would be deducted at source from interest income where the income credited or paid or likely to be paid or credited to the payer *during the financial year* exceeded Rs 400. There might still be attempts to circumvent this provision also by splitting the existing deposits into still smaller amounts. However, the Union Finance Minister, while moving the Finance Bill in April 1975, raised the monetary ceiling limit for the application of the provision for deduction of tax at source from Rs 400 to Rs 1000 in respect of interest income. This was done because due to the high rates of interest currently in force the requirement of deduction of tax at source from interest income would have been harsh in respect of relatively small deposits.

Future prospects. It seems that the Reserve Bank regulation of company deposits has been conceived mainly as an adjunct to monetary policy and not as an action to protect the depositors. In the circumstances, it is for consideration whether the investors in company deposits should be given some kind of protection on the pattern of the Deposit Insurance Corporation providing protection to depositors making deposits in banks whether in public or private sector up to Rs 10,000 in respect of each

account. Investment in UTI, LIC, Government securities, Post Office Savings Bank are fully backed by the Government and there is no uncertainty about the payment of interest or repayment of principal. There is need of having an officially sponsored insurance agency that could afford a degree of protection to the smaller depositors. There is a possibility that the public deposits are guaranteed by an expert outside financial agency like the commercial banks. The banks are in a position to have a clearer idea of the company's finances. Further, as they are more interested in the performance and prospects of the borrower, the principle of bank guaranteeing would help in achieving the objectives of supervising the financial position of the companies. It is true that bank guarantees would increase the cost of deposits but the additional charge would be worth the protection provided to the innocent depositors. This is very essential at the present time since the total amount of deposits could be a staggering sum.

Recently, the Union Law Minister mentioned that the total share capital of the limited companies was around Rs 6000 crores and the total deposits could be over Rs 2400 crores. Considering the possible size of the total investment, it is necessary that there should be a greater concern about the safety of the small depositor's investment. The concept of bank guarantee need to be examined thoroughly.

It is felt that the regulations regarding acceptance of deposits (Sections 58 A and 58 B) of the new Companies Amendment Act, 1974, have not brought any substantial benefit to the investors. Just as the prospectus provisions are observed as a formality, these provisions would also remain a formality. Investors have the bitter experience of committing their savings on the basis of rosy prospectuses and the same story may be repeated as regards public deposits. The Companies Act itself contains a number of provisions by which the management can evade personal responsibility. Further, what is lacking is the strict enforcement of the obligation to pay interest periodically and repay the principal on the due date. On this matter, the investor is left at the mercy of the management. He does not have even the theoretical powers which the shareholders have under the Companies Act. The rules do not provide for any grievance procedure and hence a depositor has to resort to a court of law to ventilate his grievances. The disclosure of minimum details has no significance as long as the law does not evolve a mechanism to verify the truth of the statements. The mere publication of minimum details does not protect the investor unless the truth of the statements is verified and the repayment and return are ensured.

From the above discussion, we note that the regulatory measures devised by the Government have hardly checked malpractices and frauds

on depositors. In fact, the Reserve Bank's intervention has enabled finance brokers and companies to create a false sense of security among depositors. Deposits are legally sought on *caveat emptor* (let buyer beware) principle. Even in the case of known frauds the Reserve Bank has not investigated which brokers had helped the companies to obtain deposits, what commissions had been paid to them, whether the published accounts of the companies were accurate, and whether the auditors were justified in certifying them to represent the true and fair state of the finances of the company.

James S. Raj Committee on Public Deposits

In June 1974, the Reserve Bank of India constituted a Study Group under the chairmanship of Mr. James S. Raj, Chairman, Unit Trust of India, with a view to assessing the adequacy of provisions in regulating the conduct of business by non-banking companies covered in the context of monetary and credit policy laid down by the Reserve Bank from time to time. The Group was also asked to suggest measures for further tightening up of the provisions so as to ensure that the activities of such companies, in so far as they pertain to the acceptance of deposits, investments, lending operations, etc., subserve the national interest and serve more effectively as an adjunct to the regulation of the monetary and credit policy of the country besides affording a degree of protection to the depositors' monies.

The Group submitted its Report in July 1975. In formulating its approach to the problem from the quantitative and qualitative aspects, the Group took note of the fact that there was evidence to show that the dependence of non-banking non-financial companies on deposits has tended to increase from nearly Rs 700 crores at the end of March, 1972 to Rs 1300 crores at the end of March, 1975, i.e., an increase of Rs 600 crores or Rs 200 crores on an average per year. The liquidity of these companies in relation to the amount of deposits accepted by them has tended to decline. Deposits have grown inspite of the fact that there were certain advantages attached to commercial bank deposits which were not available in the case of non-banking non-financial companies.

The more recent spurt in deposits with non-banking companies was due to a combination of factors such as a very rapid rise in prices and the consequent decline in the purchasing power of money, aggressive advertising campaign, both by companies and their brokers, anti-inflationary measures taken by the Government and the Reserve Bank, particularly since the middle of 1974 and the restrictions placed on the declaration of dividends. In view of the aforesaid factors, the Group came to the conclusion that the current situation called for a regulation and not prohi-

bition of acceptance of deposits by non-banking companies. Nevertheless, it thought that the long-term objective should be to bring about a progressive reduction in the quantum of deposits with non-banking non-financial companies so that they cease to be a significant source of finance for industry and trade.

The Group is not in favour of giving insurance cover to deposits with non-banking companies on the lines of the cover offered by the Deposit Insurance Corporation in the case of deposits accepted by banks because the risks to be insured would differ widely as between companies and partly because it would be conceptually wrong to confer on unsecured company deposits the same protected status as has been conferred on bank deposits. The Group feels that a degree of risk is an inevitable concomitant of higher rates offered on company deposits. This line of reasoning given by the Group does not take into account the hard reality that public deposits can be formally institutionalised to strengthen our capital market by extending the coverage of deposit insurance. As a matter of fact, directors individually and jointly should be responsible for any default in a company's obligations to its depositors.

The Group has recommended that the *status quo* in respect of the minimum period of deposits (i.e., six months) may be maintained while the maximum duration of deposits should not exceed three years.

The Group is not in favour of prescribing any ceiling on the rates of interest offered by companies on deposits received from the public. We feel that there should have been a fixation of maximum rate of interest payable by companies on public deposits with a view to subjecting this source of finance to the discipline of credit and monetary policies followed by the Government.

It is heartening to note that the Group has recommended that a lending bank should invariably take into account the quantum of deposits received by the borrowing company while sanctioning renewing credit facilities to it and also stipulate that the borrowing company should advise the bank about the quantum of deposit proposed to be raised by it.

Companies should be required to maintain in the form of liquid assets (excluding cash in hand), a sum which shall not be less than 10 per cent of their deposit liabilities maturing during the course of the year. This is a good recommendation as it will help in maintaining corporate liquidity at a particular level.

Deposits received from directors of all companies as well as from the shareholders of private companies should continue to be exempted so that there are no restrictions on these persons bringing in their own funds and increasing their stake in the business of the company.

It would not be desirable to withdraw entirely the exemption of inter-company deposits currently available under the Companies (Acceptance of Deposits) Rules, 1975. However, the relative provisions in the Rules may be amended to provide that the exemption would be admissible only where the recipient company is a new company, i.e., a company which has not gone into commercial production and does not also accept any deposits on its own from the public. In other cases, for getting the benefit of exemption the recipient company may be required to obtain the prior approval of the Central Government.

The Group has rightly recommended that convertible debentures/bonds may be exempted from the term 'deposit' under the Rules and the Directions.

The Group has felt that the present criterion of relating the quantum of deposits to the net owned funds of a company is by far the most dependable since it is relatively stable in the course of the accounting year of a company and is also administratively feasible.

Notwithstanding the recent reduction of the ceiling in respect of unsecured loans guaranteed by directors, shareholders' deposits, etc., from 25 per cent to 15 per cent of the net owned funds of a company, the Group feels that even the reduced ceiling is somewhat on the liberal side. Hence, the aforesaid ceiling of 15 per cent may be reduced by another 5 per cent with effect from January 1, 1977 and the balance of 10 per cent may also be completely withdrawn with effect from January 1, 1978.

The exemption from the ceiling restrictions available to companies in respect of deposits secured by the creation of mortgage charge or pledge of any of their assets is fraught with dangerous consequences and hence, the exemption should be withdrawn.

The Group has also recommended furnishing of certain additional particulars in the advertisements/application forms so that the prospective depositors could have a clearer picture of the state of affairs of a company over a period as also the legal implications arising out of keeping deposits with the company.

The Companies (Acceptance of Deposits) Rules, 1975 are being suitably amended by the Department of Company Affairs in order to give effect to these recommendations. The additional responsibilities devolving on the Department of Company Affairs may be discharged within the existing administrative framework with such augmentation of staff as may be necessary at the regional levels to cope up with the increased workload involved in the implementation of the provisions of Section 58 A of the Companies Act, 1956 and the Rules made thereunder.

Inter-corporate Loans and Investments

One of the most disturbing aspects of the Fourth Plan has been the stagnation in industrial production. The Plan was launched with the target of an annual growth of 8 to 10% ; the achievement has been of less than 4%. The problem of inter-corporate loans and investments should, therefore, be examined in the context of increasing the 'size of the cake'. Emphasis should shift from control-oriented policies to development-oriented policies. At present individual capitalism does not exist. Most of the new companies promoted by way of diversification or expansion have to be supported by the financial resources of the existing companies. Any undue restriction on these companies to employ their funds for advancing loans to or making investment in other corporate enterprises is likely to slow down the pace of economic growth. At the same time, Government cannot afford to adopt a free trade policy towards inter-corporate loans and investments keeping in mind past and potential malpractices of some industrial houses. Therefore, a judicious and balanced approach is needed in this direction.

Inter-corporate loans and investments result in financial integration. This integration is a relationship not of a casual character; rather there is a regular flow of capital between companies resulting in varying degrees of fusion of their financial interests. The main motivating factor behind such integration is the pooling of financial resources of different units for the benefit of the leaders of the group. Coupled with administrative integration and interlocking directorships, the financial integration usually leads to the formation of 'industrial empires'.

Inter-corporate loans and investments are normal and necessary features of corporate management. In fact, they assist in the economic and industrial development of the country. Such investments and loans are proper and justified if they are guided by the principles of 'common

help' and 'utilisation of surplus funds'. There are certain economies of financial integration. For instance, it becomes easier to raise funds due to centralised financing. By using the composite credit of the whole organisation, it becomes possible for the affiliated companies to tide over difficult periods in their development. Inter-corporate investments also become essential for the launching of joint sector enterprises by equity-participation with foreign firms, state and national financial corporations and development banks.

There is the other side of the picture too. Those who are in control of the group wrest an improper and disproportionate advantage for themselves from the company and the public suffer. Investigations conducted by the Vivian Bose Commission brought to light, in 1963, many cases of manoeuvres, manipulation and financial jugglery where a few individuals controlling Dalmia Jain Cos. obtained personal gains at the cost of investing public. The Mundra Inquiry also showed these worst type of interlocking of funds amongst a very large number of companies resulting in utter confusion for the investing public and Government.

It is relevant here to pose the question—How are these groups able to exercise control over proportionately very large amount of capital and assets with little investment? An explanation of this state of affairs lies in the fact that majority of the shareholders are unorganised and they have a general apathy towards participation in the management of the companies of which they are the shareholders. Moreover, by using the funds of the financial institutions and associated companies, big industrial houses build and expand their industrial empires far beyond their own financial resources.

The general technique followed for building up the empires is of inter-company investments, loans and advances. "The controlling families in most cases make some relatively small investments in a principal company or companies which initiate a breeding process—in some groups an inbreeding process that takes care of nearly all subsequent controlling investments of significance, without calling forth further substantial investments from the families."¹ Thus the funds of group companies are invested to purchase shares of newly floated or existing companies with the objective of bringing them within the control of the group. Subsequently, the funds of these newly associated companies are also used to enlarge the 'empire'. In this way, a chain breeding process sets in, whereby the funds of all the companies, belonging to the group, regularly interchange to keep the show running.

¹ Mahalanobis Committee Report, 1964, p. 43.

Dr. R. K. Hazari, in his publication (*The Structure of the Private Corporate Sector*, 1963) has mentioned that "Inter-corporate investment is a powerful instrument in the hands of those who control corporate activity". This finding was based on a detailed study of 20 top business houses for the years 1951-58. Of this amount, the individuals who contributed the ultimate interests of these groups contributed only a little more than Rs 1 crore; under their control contributed about Rs. 4 crores and as much as Rs 24 crores were contributed by means of inter-corporate investment. The balance came, of course, from public subscription.

The Mahalanobis Committee on Distribution of Income and Levels of Living endorsed the same view in the following words: "Inter-corporate investment is the main instrument and an increasingly important one, for the control of companies."

The study made by the Reserve Bank of India about the pattern of share ownership has clearly brought out the wide prevalence and importance of joint stock companies as shareholders. In a study of large and medium-sized companies working in 1965, it was found that about 33% of the paid-up value of shares was held by joint stock companies and about 62% of the total shares was held in large-sized blocks. Of these large-sized blocks, 52% was held by joint stock companies.¹

The growth of inter-corporate investment is a logical and integral part of corporate growth. Inter-corporate investments may have different reasons. Among others, Mr. R. K. Hazari points out tax avoidance and speculation in share values. The liability to pay steeply progressive taxes of income during their life-time and heavy estate duties after death induce the rich to impersonalise their holdings. This is done mainly through the creation of companies and trusts. The tax liability of companies is appreciably smaller than that of individuals and they can accumulate reserves. Secondly, investments have to come increasingly from companies because the controlling individuals have little personal wealth and they have to confine their limited investment to a few key or principal companies only. The companies, on the other hand, can grow indefinitely: they breed other companies which ally with similar other companies and breed further.

Several companies have been found to hold shares in other companies, apparently not so much for investment nor even for the advancement of their business, as for taking advantage of capital market situations and for serving the purpose of their controlling interests.² Inter-corporate

¹ *RBI Bulletin*, February 1968.

² See R.K. Hazari, *The Structure of the Corporate Sector*, p. 367.

investments and loans enable some groups to set up companies the existence of which as working entities appears doubtful, and to help companies to purchase their own shares indirectly, transfer profits and losses, and to enter into transactions of a similar nature. These abuses are motivated largely by the desire to reduce tax burdens rather than to evade the provisions of the Companies Act.

The argument of finding an outlet for surplus funds in case of inter-company investments often does not have much substance. Inter-company investment, more often than not, is a short-cut to exercise control and to have concentration of economic power. These investments are made primarily to serve the purposes of controlling interest and are seldom justified by the returns they fetch.

Extent of inter-corporate investment

The extent of inter-company investment in our country can be examined by analysing the data on corporate finances published by the Reserve Bank of India. We have analysed the data on finance of 1650 companies for 1972-73, the latest year for which the statistics are available. Exhibit 1 shows the extent of inter-corporate investment in our corporate sector. It may be noted from this Exhibit that inter-corporate investment took two forms—holding of securities of subsidiary companies, and holding of securities of other companies. The amount locked up in the securities of subsidiary companies amounted to Rs 62 crores and the amount of investment in the securities of the other companies figured at Rs 115 crores. The aggregate of both these forms of inter-corporate investment amounted to Rs 117 crores against the paid-up share capital of these 1650 companies

Exhibit 1

Extent of Inter-company Investments in India : Analysis of 1650 Companies

		(Rs in crores)
		1972-73
		Rs
1. Paid-up Capital (Ordinary)		1472
2. Total Inter-corporate Investment		177
(a) Securities of Subsidiary Cos.	62	
(b) Securities of other Cos.	115	
3. Percentage of (2) to (1)		12

Source: Adapted from *RBI Bulletin*, Oct. 1974.

amounting to Rs 1472 crores. The percentage of inter-corporate investment to paid-up capital amounted to 12.

A study of inter-company investments in relation to the size of investing companies (Exhibit 2) shows that bigger companies, particularly with a paid-up capital from Rs 1 crore to Rs 5 crores, had invested a larger proportion of their share capital in securities of other companies. The inter-corporate investment for companies having paid-up capital from Rs 1 crore to Rs 5 crores amounted to 16% of their paid-up capital.

Exhibit 2

*Inter-company Investments in 1972-73: Analysis of
1950 Companies According to Size*

(Rs in crores)

Size of paid-up Capital	No. of Cos.	Paid-up Capital	Inter- corporate investment	(4) as % of (3)
1	2	3	4	5
		Rs.	Rs.	%
Rs. 5 lakhs to Rs. 10 lakhs	154	10	1	10
Rs. 10 lakhs to Rs. 50 lakhs	827	188	18	9
Rs. 50 lakhs to Rs. 1 crore	310	188	21	11
Rs. 1 crore to Rs. 5 crores	308	589	92	16
Rs. 5 crores & above	51	497	45	9

Source : Adapted from *RBI Bulletin*, October 1974.

Though the phenomenon of inter-company investment is common to all the industries, its percentage to the paid-up capital varies from industry to industry. The trading companies had invested 57% of their paid-up capital in the securities of other companies. Next came mining and quarrying followed by processing and manufacturing group covering foodstuffs and textiles, etc. The percentage of inter-corporate investment in these groups amounted to 18 and 14 respectively. The agriculture and allied group, mostly plantation companies, had invested 12% of their paid-up capital in the shares of other companies (Exhibit 3).

The magnitude of inter-corporate investment can better be appreciated if a reference is made to the finances of group companies. Mr. Hazari, in his study "*Big Business in India*" in 1961 had estimated that corporate investment contributed on an average as much as 34% of share capital of companies belonging to the different groups. In case of 316 companies of Birla group, the percentage figured at 42.

Exhibit 3

Inter-company Investments—Industrywise, 1972-73

Type of Cos.	Agriculture & allied (Plantations)	Mining & Quarry- ing	Processing & Mfg. Foodstuffs, textiles etc.	Processing & Mfg. Metals, Chemicals, Engg. etc.	Processing & Mfg. not classified else- where	Trading	Other Industries, Shipping etc.
No. of Cos.	162	28	488	591	171	84	126
1. Paid-up Capital (ordinary)	42	11	335	726	226	42	109
2. Total inter-corporate investments	5	2	48	63	24	24	12
a. Investment in Industrial Securities	3	2	31	36	19	17	7
b. Securities of subsidiary cos.	2	..	17	27	5	7	5
3. (2) as percentage of (1)	12	18	14	9	10	57	11

Source: Adapted from *RBI Bulletin*, October 1974.

Legal provisions

Under section 370 of the Companies Act, no lending company can make any loan to any body corporate unless the making of such loan has been previously authorized by a special resolution of the lending company. Such special resolution is also necessary where the lending company gives any guarantee or provides any security in connection with a loan made by any other person to any body-corporate or to any other person by any body-corporate. However, no special resolution is necessary in the case of loans made to bodies corporate under the same management as the lending company, where the aggregate of such loans does not exceed 10 per cent of the aggregate of the subscribed capital and free reserves of the lending company. If the aggregate of loans made to all bodies corporate exceeds 30 per cent of the aggregate of the subscribed capital and free reserves of the lending company, where all the bodies corporate are not under the same management as the lending company, or exceeds 20 per cent of the aggregate of the subscribed capital and free reserves of the lending company, where all the bodies corporate are under the same manage-

ment as the lending company, Central Government's permission is required for granting such loans.

For the purposes of this Section, two bodies corporate are deemed to be 'under the same management' if the managing director or manager of one body corporate is the managing director or manager of the other body corporate or if a majority of the directors of one body corporate constitute a majority of directors of the other body corporate. If one-third or more of the total voting power with respect to any matter relating to each of the two bodies corporate is exercised or controlled by the same individual or body corporate, then both the bodies corporate are deemed to be under the same management. Similar is the case if the holding company of one body corporate is under the same management as the other body corporate. If the directors of one body corporate themselves or with relations hold a majority of shares in that body corporate, and similarly in another body corporate, then the two bodies corporate are deemed to be under the same management.

A company cannot subscribe for or purchase shares in any other body corporate exceeding 10 per cent of the subscribed capital of that body corporate. The aggregate of such investments shall not exceed 30 per cent of the subscribed capital of the investing company in all bodies corporate in the same group and shall not exceed 20% of the investing company's subscribed capital. The investing company may make investment in the shares of any other body corporate in excess of 10 per cent of the subscribed capital of the body corporate or 30 per cent of the investing company's subscribed capital in all bodies corporate or 20 per cent of the investing company's subscribed capital in all bodies corporate in the same group, provided such investment is sanctioned by a resolution of the investing company in general meeting and approved by the Central Government. No investment can be made by the board of directors of an investing company unless it is sanctioned by a resolution passed at a meeting of the board with the consent of all the directors present at the meeting and entitled to vote. The meaning of 'same group' is similar to the meaning of 'same management' under Section 370 (1B).

The Working Group on Company Law Administration, set up by Administrative Reforms Commission, in its report in 1968, observed that several witnesses who appeared before the working group referred to the provisions of the Companies Act relating to inter-corporate loans and investments. The view was expressed that the limits within which a public company could invest in the shares of another company were unduly restrictive. It was contended that, in the present state of the money and the

capital markets, they deprived newly formed as well as existing companies from drawing on an important source of capital and thereby acted as a disincentive to the formation of capital. Further, complaints were made about the delay in the sanction of inter-company investments beyond the prescribed limits even in cases where such investments were otherwise fully justified. The Working Group had a detailed case study on the subject by the Department of Company Affairs, explaining the guiding principles which had been laid down for the guidance of the departmental officers. The Working Group concluded: "We do not think that the criticisms about the present procedure and practice are fully justified. On the contrary, we consider that the reasons which prompted the imposition of the present restriction on inter-company investments still exist and that in the circumstances of company management in this country and in order to prevent dissipation of companies' resources and undue concentration of economic power in a few hands, it is necessary to maintain some curbs on the freedom of management in the shares of other companies."

The Working Group, however, emphasized that in considering applications for inter-company investments in excess of the limits laid down in section 372 of the Companies Act, the administration should take due note of the desirability and importance of encouraging investments in priority industries, provided the management of the companies concerned could be relied upon to make good use of such investments and the investing company permitted such investments without detriment to its own legitimate needs.

It is necessary to mention that the limits laid down under Section 372 can be exceeded by an ordinary resolution of the company and with the approval of the Central Government. Several types of inter-company investments are excluded from the scope of the Section, viz., (a) investments in right shares, (b) investments by companies whose business is to invest in other companies, (c) investments by financial institutions duly recognized by government, (d) investments by holding companies in their subsidiaries.

An analysis of approvals made by the Department of Company Affairs shows that an overwhelming majority of the applications got approved. From Exhibit 4 it can be seen that in the course of 15 years, about Rs 81 crores worth of investments were approved, while Rs 18 crores worth of investments were rejected or withdrawn.

Approvals of inter-company investments, in excess of the limits laid down in Section 372, are liberally accorded, which renders obtaining of approvals a formality. The operation of the statute has not been unduly severe or the powers conferred on the Central Government have not been

Exhibit 4

Inter-company Investments under Section 372

(Rs in crores)

Year ending March	Applicat- ions	Approved Amount	Applicat- ions	Rejected/ withdrawn Amount
	No.	Rs.	No.	Rs.
1957	42	3.29	20	0.16
1958	5	1.71	3	0.09
1959	12	1.66	8	0.18
1960	18	1.98	6	0.72
1961	7	0.46	5	0.04
1962	30	5.49	24	3.08
1963	60	7.30	14	0.37
1964	37	4.90	14	1.04
1965	55	9.95	23	1.76
1966	53	4.93	14	1.23
1967	47	3.63	18	5.31
1968	51	6.91	2	0.04
1969	54	13.95	5	0.32
1970	57	7.31	18	0.91
1971	38	7.60	33	3.21
1972	42	8.64	17	14.90
1973	44	15.11	16	5.54
1974	80	23.09	13	1.46
		127.91		40.36

Source : Figures compiled from the Annual Reports on the Working and Administration of the Companies Act.

exercised with undue rigidity. The guiding principles formulated by the Central Government, in fact, have taken due note of the legitimate needs and requirements of business. In considering the applications received under Section 372, the following guidelines have been formulated by the Department :

- (a) Industrial and trading companies are allowed to make trade investment in other companies if such investments are likely to create conditions conducive to the interest of the investing company as well as to other company's more economic working and betterment of production;

- (b) A company should be allowed to make investment only if it has adequate liquid resources for making the investment and if the depletion of the working capital which would result from the blocking up of the funds of the company in the form of investments would not adversely affect the company's own working;
- (c) A company that has resorted to borrowing for its own requirements or intends to finance its investment by borrowing should not be permitted to do so except in the case of trade investments if the terms of borrowing are commensurate with the returns expected both directly in terms of dividend and indirectly through creation of conditions conducive to the interest of the investing company;
- (d) Inter-company investments should not be permitted where there is a reasonable suspicion that they are prompted by a desire to gain control over the management of companies or are for speculative or for other *mala fide* purposes;
- (e) The proposed investment would be regarded as sound if the company in which the investment is proposed to be made is in a sound financial position; its financial structure is a balanced one; it has earned profits and declared dividend in the past or should at least be capable of making profits and declaring dividend within a reasonable period of time; the purchase price is reasonable taking into account the net worth, prevailing market prices, and future expectations of profitability: the proposed investment should provide an expected return on capital at least equal to the return on gilt-edged securities and the securities proposed to be acquired should preferably be readily marketable.

NEW OUTLOOK

To accept private enterprise as socially beneficial implies the acceptance of inter-corporate investment as a corollary. It is not possible to have one without the other. If private enterprise is to be regulated in the public interest, inter-corporate investment logically has also to be regulated. The purpose of the regulation can be three-fold: (i) to protect the interests of shareholders of the investing company; (ii) to prevent anti-social uses of the opportunities available; and (iii) to direct or redirect investment in accordance with priorities laid down under planned economy.

A company is within its legitimate rights to maximise its profits and the value of its assets. If these objectives cannot be achieved within its existing business, then it should go into other industries. New plants within an existing company strengthen its earning capacity and simultaneously

reduce the tax liability of the company as a whole. This raises the value of the company shares and increases the inducement to invest. There is also a reduction of the risk involved in depending upon one activity alone.

In all the developed countries of the world diversification into many products by a group of concerns held together by the relationship of holding company and subsidiary company, or otherwise, has been found to be a useful step in the process of industrialisation. Such diversification provides, on the one hand, a cushion for the group as a whole against the risks that are inherent in any particular line of production, and on the other, makes available to the several lines of production in the group larger financial resources in addition to the wider technical know-how and better managerial skills. In the light of the experience of other countries and having regard to the urgent need of the country's industrial development, diversification with its concomitant concentration of economic power is a necessary evil in the economic interests of the country. It would not be right at the present stage of our industrial development to attempt to place restrictions on diversification that may result in a slowing down of the pace of industrialisation. It is relevant to draw attention to the directive principle in Article 39 of our Constitution which does not condemn concentration as such, but only such concentration of economic power as may be to the common detriment.

Thus there is a case worth supporting in favour of the existing companies engaged in traditional business which want to diversify by making inter-company investment. They have to diversify because they do not expect an adequate and competitive return from the expansion or large scale modernisation of their traditional business. The question does arise : What are the prosperous companies in these industries to do with surplus funds ? There has been a suggestion that spare funds of these companies should be compulsorily deposited with the government. This solution would be a remedy worse than the disease. It is inadvisable because the excess financial capacity of the companies cannot be measured in quantitative terms, especially when they are relying increasingly upon loan finance. Those who have spare funds do not keep them in the form of cash but may be using them as working capital. On the other hand, there is need of allowing such companies to diversify in areas determined in accordance with the priorities of economic growth.

The setting up of new projects under new companies required a number of complex preliminaries including, in some cases, an application to Government for approval of inter-corporate investment under Sec. 372 of the Companies Act. In cases of inter-corporate investment, the shareholders of the investing company do not get the full benefit of the invest-

ment in the new and more profitable projects, owing to a number of reasons. The new projects take time to make profit and pay dividends. The income from them is taxed in the hands of the new company, then in the hands of the investing company, and finally, in the hands of the shareholders. The inter-corporate dividend tax, being a deterrent factor for investment, should be abolished particularly where it has been made in priority industries.

Under the existing legal provisions a company can invest upto 20% of its subscribed capital in other companies if they are under the same management. It is necessary to change this percentage from 20 to 30 which applies to investment in companies not under the same management. Moreover, this percentage should be related not only to the subscribed capital of the investing company but also to its free reserve as is the position in case of inter-corporate loans. It is interesting to note that there is no restriction on a company to make investment in the share capital of its subsidiaries. There should logically be no discouragement for inter-corporate investment so long as it is not detrimental to the interest of the shareholders of the existing company as well as to the interests of the society. With a view to avoiding misuse of funds by companies, Government can gear up the monitoring system for the Company Law Board.

Considering the limited financial resources and increasing needs for finance for expansion and diversification, the restriction on inter-company investment should be relaxed. With the acceptance of our suggested change in the provisions of Section 372, a company can virtually be free to utilise its funds aggregating to about 60% of its subscribed capital and free reserves for inter-company loans and investments. With this liberal margin on which companies will have the freedom to operate, there is no room for any legitimate apprehension about the adverse effects of these provisions on diversified growth and expansion of corporate business. Further, this percentage is relaxable if a good case for diversification/expansion is presented by the corporate management before the Central Government. There should, however, be an efficient system installed for taking timely decision on such applications for relaxation.

31

Convertible Bonds and Loans

CONVERTIBLE BONDS

Convertible bonds are exchangeable, at the option of the holder, for ordinary shares under specified terms and conditions. Conversion price for the shares is usually indicated at the time of issue of convertible bonds. The conversion ratio is the number of ordinary share/shares that are received in exchange for a convertible bond. When a convertible bond is issued the conversion price is usually set above the prevailing market price of ordinary share. For instance, if the prevailing price of ordinary share is Rs 125 at the time convertible bond is issued and conversion price set on ordinary share is Rs 150, there is a premium of Rs 25 of conversion price over the prevailing price of ordinary share.

A convertible bond is exchanged at the will of the holder for a previously determined number of equity shares. The convertible bond is an indirect means of selling equity shares. The conversion privilege may be stated in two ways. On the one hand, the terms and conditions may provide that each Rs 1000 bond is convertible into 20 equity shares. On the other hand, it may be stated that the bonds are convertible into ordinary shares at Rs 50. By dividing the face value (not the market value) of the bond (Rs 1000) by the conversion price of the ordinary share (Rs 50), we can determine that 20 equity shares will be received upon conversion. Sometimes, the conversion privilege expires after a certain number of years.

The conversion feature acts as a sweetening agent to sell bonds that may not otherwise be sold or may only be sold with the inducement of a very high yield. It is not surprising that a number of convertible bonds have been issued by financially weak corporations in the United States. In contrast, companies that are very sound may also issue convertible

debt. Issuance of convertible bonds is preferred to sale of equity shares when they are undervalued. For example, if the ordinary shares of a company are selling at Rs 80, a price that is believed too low, the company may issue bonds convertible into ordinary shares at Rs 100. The company is thus selling ordinary shares at 20 points above the current market price. There is a good deal of validity for this argument but it has one major flaw. If at some later date the ordinary share is selling for Rs 150 and the bondholders convert, they will then obtain ordinary shares at the bargain price of Rs 100. Thus, at the time of selling convertible bonds, it is difficult to tell who will get the better of the deal.

Advantages. From the standpoint of the issuing company, the use of convertibles has distinct advantages : (a) A company selling convertible bonds is in effect selling ordinary shares in disguise. Investors who may be unwilling to buy equity shares in the initial years of a company, may decide later to convert their bonds into equity. In other words, issue of convertible bonds may be described as deferred equity financing. (b) They enable management to raise equity capital indirectly, without diluting the stock until the proceeds are at work earning an added return to support the additional shares. (c) They permit equity capital to be obtained at higher prices for the shares than current market levels would allow. (d) They attract the funds of the institutions which may not otherwise be purchasing equity shares or may hold small percentages of total investment in ordinary shares. Such institutional investors can invest in convertibles with lesser restrictions. (e) Until the bonds are converted, the company has a tax advantage because interest payments constitute deductible business expense. (f) Convertibles can be sold at times when other bonds are not likely to have a good investment appeal. In periods of tight money, companies may not be able to sell straight debt issues except at excessively high rate of interest. The addition of the conversion right permits a lower rate of interest and makes the issue saleable in a period when high grade bond prices are falling due to rising interest rates. (g) The convertible bond is unsecured and its issuance may ordinarily not impair the borrowing power of the issuing company. (h) Conversion facility imparts a measure of flexibility to the capital structure of the company concerned. Conversion is an important method of retiring bond issues.

Thus, convertibles have broad advantages for the issuing companies. Their use tends to avoid the under-pricing of equities which is, as a rule, necessary when a straight new issue of ordinary shares is made. A general rise in stock-market, high margin requirements for shares, and the willingness of the financial institutions to lend as much as 85 per cent of the market price of bonds used as collateral make convertibles especially very

attractive in such periods. Further, the convertible bonds may provide greater rupee volatility than the ordinary shares because as the price of the equity share advances beyond the conversion rate of the bond the two securities move upward together, with relative price changes in the exact ratio of the exchange privilege. Thus, a bond convertible at Rs 25, or 4 shares for Rs 100, will move 4 points for every point change in the price of the equity.

Convertibles enable a firm to sell future issues of equity shares at a higher price than the price at which its ordinary shares are selling when the convertibles are issued. Another advantage from the standpoint of the issuing company is that convertibles issued can be used as a temporary financing device. During the years 1946 through 1967, American Telephone and Telegraph Company sold \$10 billion of convertible debentures. By 1959, about 80% of these convertible debentures had been converted into common stock. The Company could not have sold straight debt of this amount because its financial structure would have been unbalanced. On the other hand, if it had simply issued large amounts of common stock periodically, there would have been price pressure on its stock because the market was slow to digest large blocks of stock. By using convertible debentures, it received relatively cheap money to finance growth. Transmission lines and telephone exchange buildings must first be built to provide the basis for ultimately installing phones. While the company was installing transmission lines and telephone exchange buildings, these investments were not earning any money. Therefore, it was important for it to minimise the cost of money while these installations were being erected. After a lapse of certain period, those installations were translated into telephones that were bringing in revenues and the Company was better able to pay dividend on its common stock. Thus, convertibles proved very helpful in financing the growth of this Company.

From the view-point of an investor, convertible bonds may, under proper circumstances, prove an ideal combination of high yield, low risk and potential capital appreciation. These bonds offer safety of principal and at the same time give the bondholders an opportunity to share in the growing profits of a company. Thus they get an opportunity of having the cake and eating it as well. The importance of a convertible bond to an investor depends on its value as a bond and on its potential value as an ordinary share.

Disadvantages. From the standpoint of the investor, the price of convertibles may contain a large speculative premium which has to be paid for acquiring ordinary shares via the convertible bonds route. From the standpoint of the issuing company, convertibles have a possible disadvan-

tage in the sense that the issuing company may realise a much higher price for selling its ordinary shares in future, particularly in the case of a fast growing company. If the price of equity share increases substantially, the issuing company may find that it would have been better off if it had waited and simply sold the equity shares.

Conversion price. How is conversion price determined ? Usually it is set about 10 to 20 per cent above the market price of the ordinary shares at the time the convertible bonds are issued. If the market is buoyant and other features of the debt issue are attractive, the corporate management may set the conversion price much higher than 20 per cent above the market price of equity shares. However, it should not be set too high, or the conversion feature will have little value to prospective purchasers. The higher the conversion price, the longer the bondholders will have to wait for the market price of the stock to rise enough to push up the market value of the bond. The conversion privilege may thus turn out to be valueless. On the other hand, the conversion price should not be set too low. One purpose of selling a convertible bond issue is to sell ordinary shares indirectly at a price higher than the current market price. If the conversion price is set below the current market price of the ordinary shares, then this purpose will be defeated. As the conversion price is lowered, the present value of the conversion privilege is increased. But by lowering the conversion price, the present shareholders are faced with larger sacrifices at some time in future because they will be forced to share the earnings of corporation with the large number of new shareholders (ex-bondholders) when conversion takes place. *The aim should be to set the conversion price at a level so that the added rupees gained immediately from the conversion privilege are matched by the present value of the future earnings sacrificed.* This is not something that can be worked out on a slide-rule but this discussion should suggest the nature of solution to the problem.

Under what circumstances would a bondholder convert voluntarily ? If the dividends being paid on the ordinary shares are very attractive, he may sacrifice his senior position in order to obtain the higher dividends. Also, if the conversion price were scheduled to increase in the near future, he might convert.

Forced conversion. If the basic aim of the company in issuing convertible bonds is to issue ordinary shares, it may force conversion. To avoid some undesirable consequences, this may be included as one of the terms in the bond indenture. In order to be able to force conversion, companies issuing convertibles insist upon a call feature. When the conversion value of the security is significantly above this call price, the issuing company can force conversion by calling the issue. Rather than accept

the lower call price, investors will convert their securities. Many U.S. companies regard a 20 per cent premium of conversion value over call price as a sufficient cushion for possible declines in market price and for inducing investors to convert their securities. Suppose that the conversion price of an issue of convertible bond is Rs. 50 (one bond of Rs. 100 convertible into two shares of Rs. 50 each), and that the call price is Rs. 105. For conversion value of the bond to be equal to the call price the market value of the stock must be Rs. 52.5 a share. If the bonds are called when the market price is Rs. 52.5 many investors may choose to accept the call price rather than convert. Then the company would have to redeem many of the bonds for cash and the purpose of the original financing would be defeated. In order to be sure of almost complete conversion, the company may delay calling the debentures until the conversion value of the bond is 20 per cent above the call price, a value that corresponds to the stock market's price of Rs 63 a share. At this price, the investor would suffer a significant opportunity loss if he accepted the call price.

Over-hanging issue. If a company is unable to force conversion to induce the investor to convert, the convertible issue is said to be 'over-hanging'. Many companies expect to be able to force conversion within a certain length of time after issuance. For example, a growing company probably would expect the security issued to be converted within a certain period, say, four years (this period is much less in the United States—about 18 months). Not to be able to force conversion during this time is a sign that the stock has performed as well as the company had expected originally. For a growing company this occurrence can be a serious problem. With an over-hanging issue the company is constrained in its ability to obtain new financing. It is difficult to sell another convertible security until the present one is converted. The over-hanging issue creates apprehension in the market over the investment-worthiness of any new issue of convertibles and may even create apprehension over the worthiness of a non-convertible security offering. The risk of an over-hanging issue and the loss of flexibility associated with such an issue may offset, at least in part, the advantage of the convertible security in issuing price over an equity share offering.

Timing of issue. The appropriate timing of a convertible issue must be evaluated in relation to the market for the company's equity shares. If it is a poor time to sell equity shares because of depressed market price, it also will be a poor time to sell a convertible issue, even though convertible issue can be sold at a conversion price higher than the price at which an equity issue can be sold. If the management believes that the equity issue is undervalued, it might be best to postpone

the convertible issue in the hope that there would be an improvement in the market.

There is a greater dilution when the equity shares are undervalued. It is due both to the depressed market for the stock and to variations in the conversion premium with market psychology. The greater the prospective growth of a company from the standpoint of the market, the higher the conversion premium the company can obtain. The conversion premium normally will be lower in a depressed market. The timing of a convertible issue is related closely to the timing of an ordinary share issue.

Dilution effect. The dilution effect of convertible bonds on earnings per share can be examined from the following illustration of the ABC Company whose Balance Sheet is given below :

<i>ABC Company</i>			
<i>Balance Sheet</i>			
<i>Liabilities</i>		<i>Assets</i>	
Current liabilities .. Rs	3,00,000	Fixed Assets .. Rs	5,00,000
Ordinary Shares		Current Assets ..	5,00,000
(5000 of Rs 100 each)	5,00,000		
Reserves & Surplus ..	2,00,000		
	<hr/>		<hr/>
	10,00,000		10,00,000
	<hr/>		<hr/>

The book value per share is Rs. 140 $\left(\frac{\text{Net worth}}{\text{No. of shares}} \text{ or } \frac{7,00,000}{5,000} \right)$.

The market value is assumed at Rs 200. The Company is expecting its present sales of Rs 10 lakhs to be doubled in the next few years and it requires an additional amount of Rs 5,00,000 to achieve the target of doubling its sales to Rs 20 lakhs with an assumed EBIT ratio of 20 per cent of sales.

There are two alternatives before the Company to raise Rs 5 lakhs. (a) It can sell 7% convertible debentures to raise Rs 5 lakhs. These debentures would be convertible into 4 ordinary shares for each Rs 1000 debentures. (b) It can sell additional 4000 shares at Rs 125 each to raise Rs 5 lakhs (issue expenses ignored). The consequences of each course of action may be examined from the following Balance Sheets and statement showing dilution of EPS and control.

It may be seen that after conversion, earnings per share would be reduced to Rs 28.5 from Rs 36.5 earnings per share before conversion. Further, there would be a significant decline in earnings per share to

Rs 22.2 in case the Company opts for the alternative of ordinary shares to raise the additional funds.

Balance Sheet (Debenture Converted)

<i>Liabilities</i>		<i>Rs</i>	<i>Assets</i>		<i>Rs</i>
Current Liabilities ..		3,00,000	Total Assets ..		15,00,000
Ordinary Shares (7,000 shares of Rs 100 each) ..		7,00,000			
Share Premium Reserve ..		3,00,000			
Reserves & Surplus ..		2,00,000			
		<u>15,00,000</u>			<u>15,00,000</u>

Balance Sheet (Issue of Ordinary Shares)

<i>Liabilities</i>			<i>Assets</i>		
Current Liabilities ..		3,00,000	Total Assets ..		15,00,000
Ordinary Shares (9,000 shares of Rs 100 each)		9,00,000			
Share Premium Reserve ..		1,00,000			
Reserves & Surplus ..		2,00,000			
		<u>15,00,000</u>			<u>15,00,000</u>

Statement Showing Dilution of EPS and Control

			<i>Convertible Debentures</i>		<i>Ordinary Shares</i>
			<i>Before Conversion</i>	<i>After Conversion</i>	
Total Earnings ..	Rs	2,00,000	4,00,000	4,00,000	4,00,000
Debenture Interest ..	Rs		35,000	..	..
Profit before Tax ..	Rs	2,00,000	3,65,000	4,00,000	4,00,000
Tax (50%)* ..	Rs	1,00,000	1,82,500	2,00,000	2,00,000
Profit after Tax ..	Rs	1,00,000	1,82,500	2,00,000	2,00,000
No. of shares ..		5,000	5,000	7,000	9,000
Earnings per Share ..	Rs	20	36.5	28.5	22.2
Percentage Control ..		100	100	71.4	55.5

*Tax at the rate of 50% is used for ease of computation.

The dilution effect on EPS is less in convertible bonds (Rs 28.5) as against issue of ordinary shares (Rs 22.2) but this would be possible only in those cases where bonds provide favourable leverage. If the

company is earning less on the bondholders' funds than it was paying for them, removal of convertible bonds issue would increase earnings per share for ordinary shareholders.

It is difficult to make a categorical statement that reduction in earnings from Rs 36.5 to Rs 28.5 will cause a corresponding reduction in the market price of the ordinary shares. If it is true that the price-earnings ratio declines as financial leverage increases, removal of financial leverage may not adversely affect the market price of the ordinary share because of the increase in the price-earnings ratio. This matter, however, needs more study.

Convertible debentures in India. In India public issues of convertible debentures have been few so far. However, the Indian corporate sector is not unfamiliar with these debentures as a means of corporate financing. A few companies made public issues of convertible debentures, important among them being Premier Automobiles, Bombay Suburban Electric Supply, Indian Aluminium, Andhra Foundry & Machine Co. Ltd., Standard Mills, etc. An examination of the convertible debentures issued by these companies reveals that these were regular debenture issues with a fixed interest rate, period of maturity, with a charge on the assets of the company and that they carried the convertible clause as an additional attraction. The only exception to this was the issue made by the Indian Aluminium Co. Ltd. which was a convertible loan stock, no security being offered unlike in the case of other debentures. The fact that public issues of convertible debentures were few and far between is reflected in the data relating to capital issues released by the Controller of Capital Issues. Of the 65 issues of public debentures during 1966-70 only 4 issues provided for conversion facilities.

It may be emphasised that financial institutions can popularise convertible debentures so that public issues of such debentures become more widespread. For instance, the financial institutions could persuade the companies, particularly those which receive aggregate financial assistance not exceeding Rs 50 lakhs, to make public issues of convertible debentures so that a good market (primary and secondary) for these debentures develops and also serves as a catalyst to the growth of the conventional debenture market, which is at present very narrow. Companies with good dividend record and growth prospects may not find it difficult to attract subscriptions to convertible debenture issues. The recent experience with public issues of convertible bonds made by Bharat Bijlee and Camphor & Allied Products seems to be an encouraging feature. Further, the Study Group on Non-Banking Companies in 1975 has recommended that convertible bonds, which are at present

treated as deposits under the Companies Act, should be excluded from the term "deposits".

Convertible bonds in U.S. corporations. Studies made in the United States of the use of convertibles indicate that roughly 20 per cent of all public offerings of senior securities during the period of 1933 through 1952 contained convertible features. The use of convertibles increased greatly, particularly since the end of World War II. In 1951, for example, 60 per cent of all public offerings were convertibles. By 1964, however, this figure had fallen back to 20 per cent found in the earlier period. There have been certain definite advantages to investors who bought convertibles in the post-World War II period which was one of great uncertainty. . . Many forecasts of major post-war recession were made; other forecasts were of unprecedented boom. The use of convertibles permits the investor to hedge against both. In the event of a collapse, he had the protection of the senior position, but if a boom and inflation caused equity prices to push up, the convertible would rise with the price of the ordinary share. These convertibles offered the investor both lower risk and speculative potentialities, a hedge against deflation and inflation.

An empirical study was made by Weston and Brigham¹ on convertible bond usage to gain insights into the corporate planning that lies behind the decision to issue convertibles as well as to determine the characteristics of convertible bonds themselves. During the period 1961 to 1963, 215 publicly offered convertible bonds having a value of \$ 1,080 million were sold to the public. Of this total, 76% were sold by 42 well-known U.S. companies. The issue ranged in size from \$2.5 million to \$60 million, with the majority falling in \$5 million to \$20 million classes. Industrial firms predominated. Convertibles were not used to any extent by utilities. The maturities ranged from 15 to 30 years with 20 and 25 years being most frequent. The bond rating ranged from A to B, with 67% falling below BBB, the lower limit of investment rate securities. All but two convertible issues were subordinated generally to all the existing and future long- and short-term debt. This clearly caused the convertibles to be rated well below the straight debt issues of the same companies. 88% had a sinking fund provision.

Analysing the answer to the question about the reasons for using convertibles, it was due to one of two primary reasons: (1) when a company wanted equity capital and believed that convertibles were an expedient way of selling common stock, or (2) it desired debt, but found that by adding convertible features interest costs were reduced substan-

¹ Weston and Brigham, *Managerial Finance*, 2nd Edition, pp. 538-48.

tially. Of the firms replying to the questionnaire, 73% were primarily interested in obtaining equity, while 27% used convertibles to sweeten debt issues. The bonds of the latter group generally carried the lower rating, which was to be expected.

The relatively large corporations in the sample were by no means forced to use convertibles. They generally had the opportunity of selling either straight debt or stock, both at reasonable costs, but they deliberately chose to employ convertibles.

The firms were asked about their conversion policy. A quarter of the companies stated that their policy was to force conversion as soon as the conversion value exceeded the call price by about 20 per cent. Another 26% indicated that they would encourage voluntary conversion by raising dividends. The remaining 54% of the respondents either did not plan to force conversion at all or else had no clearly defined policy.

Questionnaire responses and interviews suggested that the institutional phenomenon might serve to make convertibles a relatively attractive form of financing. A number of institutional investors—life insurance companies, certain pension funds and banks, for example—are severely restricted in their ability to hold common stock. The investment officers of many of those institutions are thought to feel that it would be desirable to have more equities than regulations permit. Convertible bonds provide these intermediaries with a method of indirectly holding more equities than the law permits.

CONVERTIBLE LOANS

The recent decision of the Government of India to confer on public financial institutions the right to convert their loans given to, and/or debentures purchased of, undertakings in the private sector into equity shares created much stir and caused many misgivings. It may be recalled that the Industrial Licensing Policy Inquiry Committee (the Dutt Committee) had investigated the cases of large enterprises receiving substantial assistance from public financial institutions. It was found that in respect of 29 large companies, the assistance provided by these institutions, on an average, accounted for as much as 54 per cent of the total project cost. In certain cases the share was as high as 89 per cent. Therefore, the Dutt Committee recommended that the projects which received financial assistance of significant magnitude from the public sector should be treated as joint sector projects and that the public sector financial institutions should in such cases have the option to convert the full or part of their assistance in the form of loans/debentures into equity so that the community could get a proper share in the benefits accruing

from such projects. Further, they should also participate in the management to a greater degree than hitherto, particularly at policy levels. These recommendations, accepted by the Government, had a two-fold objective, viz., to share in the benefits accruing from the assisted projects, and to ensure active participation in their management.

It has been suggested in official quarters that there are many undertakings which call for a heavy investment. The amount of equity, required to conform to a debt-equity ratio considered proper in the long-run, is too large in relation to the response from investors who have to mark time for several years in order to get a return on their investment. Hence financial institutions are approached for loans. In this context, a timely transition to a proper debt-equity mix can be facilitated if the institutions are given a right to convert a portion of their loans into equity. There is nothing unusual or out of the way in resorting to the issue of convertible loans as a method of financing large industrial projects. Attention has recently been focused on it on account of the Government's acceptance of the recommendations of the Dutt Committee. It is customary with development banks in many of the industrialised countries to subscribe/underwrite convertible bonds/preference shares with a view to participating in the prosperity of the successful projects. The International Finance Corporation (an affiliate body of the World Bank) has subscribed to many such issues.

Guidelines for financial institutions

On May 1, 1971, Government issued guidelines in pursuance of its earlier decision giving public financial institutions a greater degree of participation in the case of projects assisted by them. According to Government's decision, a convertibility clause should normally be written in all cases where the aggregate financial assistance to a concern by the public financial institutions exceeds Rs 50 lakhs. Where the assistance is below Rs 25 lakhs, the convertibility clause need not be written as a measure of policy unless the financial institutions themselves so decide on commercial grounds. A convertibility clause may be written at the discretion of the financial institution in cases where the aggregate financial assistance to an industrial concern exceeds Rs 25 lakhs but does not exceed Rs 50 lakhs. The willing consent of the assisted industrial concern will be built into the agreement.

If the financial institutions, in consultation with the Industrial Development Bank of India, exercise their discretion in a case where assistance is between Rs 25 lakhs and Rs 50 lakhs, to waive the writing-in of a convertibility clause, they are required to record their reasons for

doing so.' Further, in a case of assistance exceeding Rs 50 lakhs, if the convertibility clause is proposed to be waived, the institution concerned should make a prior reference to the IDBI through the Department of Banking, Finance Ministry and obtain the Government's advice before finalising the terms and conditions of the financial assistance.

The public financial institutions include IDBI, IFC, LIC, UTI and ICICI. The financial institutions will have to exercise their judgment in consultation with the IDBI to see that the ratio between debt and equity of the assisted industrial concern is reasonably maintained at all times in the interest of the shareholders and the financial institutions which may already hold or come to hold investments in the concern.

Separate guidelines are proposed to be issued later by the Government to the financial institutions regarding the exercise or waiver of the option, as the case may be, to convert loans/debentures into equity at the relevant stage, after some experience has been gained by the institutions in the working of this scheme.

In regard to industrial projects involving foreign investment, the guidelines indicate that it will be useful for the administrative ministry of the Government and the Foreign Investment Board to consult the IDBI before a scheme of finance and the percentage of foreign equity are approved finally. Cases where the foreign equity participation had already been approved by the Government need not ordinarily be reopened unless the concerns have still to obtain clearances under the Monopolies and Restrictive Trade Practices Act when the scheme of financing would in any case come up again for consideration before the Government. Some categories of foreign currency loans are exempted from the convertibility clause. For instance, the convertibility clause will not be included in the loan agreement covering sub-loans granted by the Indian financial institutions to industrial concerns out of foreign currency lines of credit made available by foreign financial institutions directly to the Indian financial institutions for sub-lending. This exemption will, however, not apply in the case of rupee loans made available by the Indian financial institutions to industrial concerns to enable them to purchase foreign exchange from foreign lines of credit received directly by the Government of India from sources abroad.

The guidelines do not contemplate conversion of the loans given in the past to any industrial concern. The conversion of loans given by the financial institutions into equity will be made only in future within the framework of the policy outlined therein.

In regard to participation in management, the institutions will nominate directors to represent them on the boards of management of the assisted concerns in whose case the convertibility clause is provided for. The nomination of directors by the institutions on the boards of assisted

concerns, according to guidelines, is intended not only to safeguard the interest of the institutions but also to serve the interest of sound public policy. The IDBI, in consultation with the other institutions, would prepare a panel of suitable persons for nomination as directors on the boards of assisted concerns.

The guidelines are intended to bring about a uniformity in approach by all the public financial institutions. In all cases of financial assistance, combined judgement will be exercised by all the term financial institutions concerned under the auspices of the IDBI to see that a reasonable ratio is maintained between debt and equity in the case of all assisted concerns in the interest of shareholders. The assisted industrial concern would have a clear indication of the actual terms and conditions of convertibility before it finalises its agreement with the financial institution. In other words, the willing consent of the assisted industrial concern is meant to be built into the loan agreement.

The objective of the guidelines is evidently anti-monopolistic as they apply only to loans exceeding Rs 50 lakhs, though below this amount discretion lies with the financial institutions. It has been argued that if equity participation is to be used to ensure sound management of the concern financed, then the consent provision should apply to all enterprises borrowing from the financial institutions irrespective of the quantum involved. But since the Government has restricted the scope of consent to loans exceeding Rs 50 lakhs, the inference is that the conversion clause is meant to bring in the joint sector through this new measure. The Government is well set for a break-through into a joint sector, though the entry is restricted to loans granted henceforward and not to those granted in the past.

The inclusion of convertibility clause or appointment of its nominees on the board may not ensure that the financial institution will have an effective voice in the management of the concern. There are cases where the presence of one or two Government nominees on the board of directors of the companies has had little impact on the policies followed by the companies. Therefore, it has been argued that the conversion provision would hardly produce any impact on companies whose borrowings from public financial institutions amount to less than 50 per cent of their capital assets. Only in those cases where loans account for more than 50 per cent, may the conversion provision be used to bring changes in the management policies of the companies.

Certain difficulties are envisaged in the actual implementation of the conversion programme. The most important is the rate at which the loan would be converted into equity. If the conversion is at par, the financing institution would be a gainer, especially if the company is a prosperous

one. It is true that nobody can object for a financial institution purchasing a share in the open market as is done by LIC or UTI. But to take undue advantage of the financial requirements of a company and get a company accede to onerous terms may amount to a kind of exploitation. The Government notification may say that willing consent of the assisted industrial concern is meant to be built into the loan agreement, but how this is actually achieved is the crucial point.

The conversion scheme is to apply only to loans which would be granted in the future. It dilutes the objective which the Dutt Committee had in proposing the scheme. The Dutt Committee was emphatic that equity holdings of various public financial institutions, the most notable among them being LIC and UTI, should be effectively used for the enlargement of the role of the State in the management of private sector industry. Its recommendations were intended to rectify the serious deficiencies and anomalies that had crept into the industrial system. The conversion clause, as it is now contemplated, makes no attempt to rectify the defects that have already occurred. It is true that a number of steps have been taken to restrain monopoly power in the future. But what is more necessary is to use the conversion device to reduce some of the monopoly power that has grown up in the past. By excluding loans given in the past, the advantages secured by some concerns are retained. This goes contrary to the principle of equity and perhaps was not the objective of the Committee in suggesting this mechanism.

There is a criticism that conversion rights will adversely affect the interests of equity holders. They would be denied dividends during the initial period when financial institutions might earn interest on their assistance and later on they would get reduced dividends when the project reached profitability stage due to dilution of equity through conversion of loans/debentures. This criticism, however, ignores the fact that the stage of profitability would itself be not reached but for the substantial loan assistance given by the institutions. Further, the lending institutions provide the finances at a favourable rate. The institutional approach is not of mere money-lender but that of one interested in the development of the country.

It is contended that rights of conversion might discourage investors from subscribing to new issues and might also lead to violent fluctuations in the stock market. The exercise of rights by the financial institutions, with due regard to the financial structure of the assisted concerns and active participation in their management, far from affecting the investors' confidence, should bring in more savings into the capital market.

It is argued that financial institutions will not gain much by the exercise of conversion rights and that it is needless to go through this

exercise. A review of some past cases suggests that there is no need to take such a pessimistic view. Moreover, it should be remembered that participation in management is also an objective to be taken into consideration.

The guidelines, it is claimed, fall short of an open policy on conversion. A ceiling on conversion could have been prescribed in terms of debt-equity ratio of, say, 1.5 or 2 : 1. Exceptions to the ceiling might have been indicated for companies dealing in products commanding a heavy premium. The guidelines leave technical exercise of determining the extent to which the conversion option ought to be indicated to the development banks.

The Finance Ministry has retained powers to override the institutions, as reflected by its demand for quarterly reports. The grounds on which the overriding power is to be exercised by New Delhi have not been made public. The fear in financial circles exists that an element of arbitrariness has been injected into the issue of conversion. The political ramifications of such arbitrariness could be wide since New Delhi is subject to Parliamentary control.

The policy of discretion to the financial institutions with prior approval of the Government has been adopted because Government is not clear if the objective of conversion is only to give the financial institutions a share in the profits of the venture they assist or bring them under Government control as well. This basic issue has been left to a second set of guidelines which may not be issued for some time. If the objective is only profitability, the development banks should be given the discretion to decide the extent to which they should exercise the conversion option and the time and manner of disposing of their equity holdings. Indefinite retention of equity for control can hardly be an objective of a development bank.

There is going to be a big problem in finding the desired number of persons to man the various boards of management of assisted companies. The financial institutions' own staff would be clearly inadequate. The guidelines direct them to form a panel of qualified persons who could be nominated to the boards of various companies. Would not such a panel give the party in power a new source of disbursing patronage ?

One point over which there has been little discussion so far relates to the association of the development banks with the public sector ventures they assist. Both Central and State ventures suffer from interference at the political level, a defect which could be remedied, at any rate partly, if the development banks had some say in their management.

It is suggested that Government must not only declare the criteria of conversion but also free the financial institutions from its excessive control. The Government may set up a separate agency to tackle the problem

of control and leave the development banks to their role as promoters and financiers of industry and institutions like LIC and UTI to their role of satisfying policy-holders and unit-holders, respectively.

The Finance Minister, replying to questions on the guidelines in Parliament on July 27, 1971, stated that the Government was committed to a policy of bringing in the joint sector where private sector undertakings got large loans from public financial institutions. When a project was coming up with major help from public financial institutions, it should become a joint sector. Rejecting a suggestion for throwing open the share of public sector undertakings to the public and workers in these undertakings, he said, "We don't want to convert the public sector into a joint sector. We want to see that this private sector is converted into a joint sector.... No hurdles are anticipated in following these guidelines by the all-India long-term financial institutions. It is not our intention to stop institutional credit for genuine productive requirements".

A statement was also presented to the Parliament by the Finance Minister showing the names of 30 companies in which convertibility clause has been inserted in the loan agreements entered into by those companies with the Industrial Development Bank and the Industrial Finance Corporation. A study of this statement shows that in most of the cases 20 per cent of the loan sanctioned was proposed to be converted into equity.

The earlier apprehension that the offer of loans could be used as a lever for getting control over the companies is clearly unfounded. The guidelines issued to the financing institutions lay down the circumstances in which they should provide for options for converting their loans into equity. The convertibility clause will be written into loan agreement so that the borrowing firm knows in advance that there is a possibility of the lending institutions exercising such an option. There is no danger of loans being converted into equity capital in the case of previous loans, even where they were taken by the big industrial houses. The question will arise in their cases only if there is any default in their repayments. The rationale of the clause is that when a financing institution makes term funds available at special rates, it is entitled to a share in the profits of the company when it becomes profitable. There is no reason to feel that the financial institutions will be over-eager to exercise the option in every case. Company profits are subject to wide fluctuations and financial institutions might generally prefer to be sure of their interest than run the risk of receiving variable dividend on equity holdings.

The extent to which equity should be enlarged through conversion of loans would depend on the lending institution's judgment as to what ratio between debt and equity would be reasonable in the circumstances of the particular industry and the particular concern. The optimum debt-

equity ratio would vary from one industry to another. It vitally affects the return to the equity shareholders which should be in consonance with the magnitude and risk of investment and the period of gestation. A proper balance should, therefore, be maintained between debt and equity in order that the return on equity may be maintained at levels considered reasonable in the circumstances of the industry and the particular concern. Accordingly, financial institutions have to take a view, first, about the profit-earning capacity of each company in respect of which they wish to retain their option to convert their loan into equity, and secondly, the debt-equity ratio required to provide a reasonable return on the equity, and on that basis decide the extent of loan to be converted into equity. This may mean that in heavy investment sectors the financial institutions will have to see that the amount of loans to be converted into equity is not so large in relation to the pre-conversion equity as to unduly depress return on equity and make it unattractive to an ordinary shareholder. Nor should it be so small as to give too high a return on such a shareholding which may provide little benefit to the public sector institution. Another consideration would be to maintain the joint sector character of the project concerned and this consideration will have to be taken into account while deciding on the extent of loan to be converted. A view will have to be taken on the price to be paid per equity share while converting the loan and should be specified in advance at the time of granting the loan. This involves an exercise of judgment on the intrinsic value of the share which in turn will depend on one's estimate of the trend of earnings. Unfortunately, the guidelines issued on May 1, 1971 are silent on this important issue.

The option to convert the loan into equity should be kept open for a reasonable period of time so that the institutions may have adequate data at their disposal regarding the profitability of the project. Here, no uniform rule will be feasible and the institutions will have to decide the period to be specified in the loan agreement according to the circumstances of each case. In regard to the period for which an institution can hold the equity shares of an assisted concern, it is worth noting that the IFC is precluded by its constitution for holding such shares for periods longer than 7 years (except with the approval of the IDBI). On the other hand, the interest of the LIC and UTI may not always coincide with that of the IDBI, IFC and ICICI, which are development banks.

Guidelines in operation.¹ It is over four years since the Guidelines came into force and it may be useful to put together the available data on the operations of the financial institutions in terms of the Guidelines. However, the data available is scanty. The financial institutions are re-

¹ Reserve Bank of India Bulletin, January 1976, pp. 13-19.

quired in terms of the Guidelines, to report to the Government, every quarter, all the details of cases where convertibility clause is either included or waived. Only the IDBI and the IFCI have been publishing in their annual reports, some data relating to conversion of loans/debentures into equity. The other three financial institutions—LIC, UTI and the ICICI have not published any information in this respect.

The number of companies which obtained assistance from the financial institutions exceeded 200 as at the end of June 1973 and 380 at the end of June 1975. Of these, conversion conditions were stipulated in respect of about 180 companies and 362 companies as of June 1973 and 1975 respectively, though conversion clauses were actually written into loan agreements in respect of about 170 companies and 288 companies. Available information suggests that the IDBI, being the more important of the term-lending institutions, accounted for a larger share in the number of companies. The number of loan agreements involving conversion clauses signed by the IDBI was 110 at the end of June 1973 and this increased to 222 at the end of June 1975, i.e., at the rate of over 50 agreements a year.

About 85 per cent of the assistance involving conversion clauses is in the form of debentures, a large part of these debentures being held by the LIC and the UTI. The details available in respect of about 288 companies indicate the nature of terms of conversion. It is found that the proportion of loan or debenture amount that is fixed for purposes of conversion is generally 20 per cent, though there seem to be cases where the proportion ranged between 5 per cent and 100 per cent. About 65 per cent of the companies and around 69 per cent of the amount are in the 20 per cent group, while a little over 21 per cent of the companies and about 22 per cent of the amount are in the category of less than 20 per cent. Companies with more than 20 per cent conversion requirement form a relatively small proportion both in number and amount. There are a few cases where the conversion proportion is 100 per cent but these seem to relate to convertible debentures issued prior to the formulation of the Guidelines.

The conversion of loans and debentures into equity is to be effected at par in the majority of cases. About 200 companies, accounting for over 80 per cent of the amount to be converted, seem to have agreed to convert at par. The number of companies (78) which seem to have agreed to convert loans/debentures at a premium, account for less than 20 per cent of the total amount to be converted. It would be useful to know the distribution of companies according to percentage of premia at which conversion is to be effected. However, complete details are not available to attempt such a distribution. A general observation that may be made regarding the rate of conversion is that in the case of new companies, con-

version at par seems to be preferred by the institutions while in the case of existing concerns conversion at a premium seems to be agreed upon.

In regard to the period during which conversion option could be exercised, a period of two to three years seems to be preferred by the institutions in the majority of cases. In these cases, initial and terminal years are specifically indicated. In a few cases conversion option could be exercised any time during the currency of the loan. In certain other cases, option to convert could be exercised during the third or fourth year of the project or of production. This is understandable, as no uniform rule will be feasible for the reason that circumstances differ from project to project. Not only the projects take time to come to fruition but the financial institutions also require time and data to assess the profitability of the projects.

As regards the interest rates charged on convertible loans/debentures the general approach of the financial institutions seems to be to charge rates of interest upto the maximum permitted by the Controller of Capital Issues in respect of the debentures subscribed to by the public.

As part of the convertibility arrangements in terms of the Guidelines, the financial institutions have nominated their directors on the boards of all assisted concerns.

Assessment of guidelines. The various terms of conversion are likely to give the impression that these are biased in favour of the financial institutions. This impression may not be entirely correct, if we consider factors such as gestation lags, risks, etc., involved in financing the projects. Financial institutions have the option to convert depending upon the progress and performance of the industrial project. They may derive benefits in the form of increased earnings or capital gains. But such benefits are contingent upon how profitable the projects financed by the institutions prove to be.

It would be useful to assess the impact of the conversion clauses on the debt-equity ratio of the companies which have entered into conversion arrangements; however, such an assessment is difficult to make in the absence of details of debt-equity ratios of companies before and after the exercise of conversion option. Financial institutions do expect a lower debt-equity ratio as the project progresses, generates funds and liquidates the loans. Problems of over-capitalisation and disproportionate equity base would arise from conversion only when the scope for further investment by the borrowing company is very much limited.

There is also the view that the exercise of conversion option is likely to have some impact on corporate management as conversion may result in the dilution of the borrower's interest in the enterprise and at the same

time increase the extent of control by the financial institutions. The institutions do not generally interfere where managements are efficient.

It is difficult to assess the number of companies which may have withdrawn from negotiations with the financial institutions because of unfavourable clauses of conversion. On the other hand, the number of applications and loan agreements providing for conversion clauses may indicate willingness on the part of companies to accept the conversion terms as stipulated by the financial institutions. These may also reflect the general tendency among company promoters to approach the capital market with some support from the financial institutions. It is often argued that the substantial growth in public deposits with companies since 1971 reflects the tendency among companies not to approach the institutions and thus avoid conversion arrangements. This view may not be entirely correct, as the growth of deposits with companies is the result of a variety of factors including credit squeeze. The view that conversion arrangements are evaded by companies by resorting to term-loans from banks may not also be correct, as the applications for term-loans are subjected to a rigorous drill under the Credit Authorisation Scheme.

The issue of the Guidelines has been motivated by the socio-economic objectives such as the need to weaken the present concentration of economic power and exercise social control over big business groups in the corporate sector. The Guidelines have come to stay and the financial institutions will have to operate them in a flexible manner so that any adverse effects that may arise, could be mitigated or eliminated. This implies that the role of term-lending institutions will have to be more and more innovative even within the framework of the present Guidelines. The financial institutions could consider whether the amount to be converted could be related to the loan outstanding at the time of exercising conversion option, instead of relating it to the amount of loan granted. Similarly, the financial institutions could also think of a limit for their holdings of equity shares as, otherwise, these institutions will come to hold more and more of the shares of a concern, with each fresh borrowing made by the company.

CASE STUDY

THE STANDARD MILLS COMPANY LTD.

In April 1966, a Special Resolution was passed in the General Meeting of the Company consenting to the issue of Convertible Bonds, with the rights of conversion attached thereto. The Company issued a Prospectus in May 1966 inviting applications for the purchase of 24,400 Convertible Bonds of Rs 500 each amounting to Rs 1,22,00,000 payable at par in full on application. The amount of Rs 1.22 crores proposed to be raised by the issue of Convertible Bonds was one of the sources of funds amounting to Rs 6.75 crores (Exhibit 1) for financing a diversified project for the manufacture of caustic soda, caustic potash, chlorine, and hydrochloric acid. The Company was putting up this project near Thana in the State of Maharashtra.

The Company was incorporated in the year 1892 with the objects of carrying on the business of spinning, weaving or manufacturing or dealing in cotton or fibrous substances and the preparation, dyeing or colouring of any of the said substances and the sale of yarn, cloth or other manufactured fibrous products and other objects as set out in its Memorandum of Association. The Company had amended the objects clause of the Memorandum of Association enabling it, *inter alia*, to carry on the business of manufacturers of and dealers in chemicals, chemical compounds (organic and inorganic) in all forms and chemical products of any nature and kind whatsoever, and by-products and joint products thereof.

The Company had started in 1892 a Spinning and Weaving Textile Mill in Bombay and at the time of making this issue of Convertible Bonds it had three textile units—two in Bombay and one in Madhya Pradesh—comprising in all 2,695 looms and 1,13,116 spindles.

The issue of Convertible Bonds was being made to provide finances required for the implementation of the Chemical Project. The production of caustic soda in India was inadequate and the country had to import from foreign countries large quantities of caustic soda. It meant a potential market for this product. Chlorine which was a joint product was envisaged to be consumed by National Organic Chemical Industries Ltd., (a Company under the control of the Group and in the neighbourhood of the Company's proposed factory at Thana). On the basis of the prices expected to be realised and after providing for the cost of production, raw materials, overheads, depreciation and other contingencies, the Directors were of the opinion that the project would be in a position to earn a reasonable return on the capital invested.

The terms and conditions of the Convertible Bonds were as under :

(a) The Bonds were issued at par under Prospectus for public subscription in the units of Rs 500 each and the full amount of Rs 500 per Bond was payable on application.

(b) The Bonds carried interest from the date of allotment thereof at the rate of $7\frac{1}{2}\%$ per annum and such interest was payable by equal half-yearly payments on the 30th day of June and 31st day of December each year.

(c) The Bonds would, subject to the right of conversion attached thereto, be redeemable at par on the expiry of twelve years from the date of the allotment thereof with liberty to the Company to redeem the same at any time after the expiration of 10 years from the date of allotment thereof on giving six months' notice in writing.

(d) The holders for the time being of the bonds would, at any time within a period of not more than six months from the expiry of five years from the date of allotment thereof, be entitled to require the Company on surrender of the Bonds held by them respectively to allot to them in respect of each Bond so surrendered by them and in satisfaction thereof one equity share of the Company of Rs 100 credited as fully paid issued at a premium of Rs 250 making together the sum of Rs 350. In addition, they were to get a sum of Rs 150 in cash for each bond so surrendered. The holders of the bonds were required to give notice in writing at least 15 days before the expiry of the said period of six months. If at any time before the expiry of the said period of five years from the date of the allotment of the bonds the Company would issue and allot to the existing holders of equity shares of the Company of Rs 100 each bonus shares of Rs 100 each in the proportion of one such bonus share for every seven of the then existing equity shares in the Company of Rs 100 each (the Company was contemplating to issue and allot 21,950 bonus shares increasing the share capital to Rs 1,75,60,000), the Company would issue and allot to the holders of bonds one equity share in the Company of Rs 100 credited as fully paid and issued at a premium of Rs 200 (instead of Rs 250) making together the sum of Rs 300 and to pay to them respectively along with such allotment a sum of Rs 200 (instead of Rs 150 as aforesaid) in cash.

(e) The equity shares so to be allotted in satisfaction of the bonds as mentioned above would be allotted at one and the same time to all the holders of the bonds delivering such notice and surrendering their bonds to the Company for conversion would rank *pari passu* in all respects with the then existing equity shares of the Company except that such equity shares would rank for dividend for the year in which they were allotted, pro rata from the date of the allotment thereof.

(f) The Company would, on the expiration of the said period of six months from the expiration of five years from the date of the allotment of the bonds, allot and issue to all the holders of the bonds delivering such notice and on surrendering the bonds, equity shares in the Company of Rs 100 credited as fully paid and issued at a premium of Rs 250 or Rs 200 as the case might be and paid to such holders simultaneously with such allotment a sum of Rs 150 or Rs 200 as the case might be in cash.

The entire issue offered to the public had been underwritten as follows :

Name	Amount (Rs in lakhs)
1. Unit Trust of India	15
2. The Industrial Credit & Investment Corp. of India Ltd.	15
3. New India Assurance Company Ltd. ..	10
4. The Central Bank of India Ltd.	10
5. The Bank of Baroda Ltd.	10
6. The Bank of India Ltd.	10
7. The United Commercial Bank Ltd. ..	10
8. Harkisondass Lukhmidass	10
9. Industrial Investment Trust Ltd. ..	5
10. The Investment Corporation of India Ltd. ..	5
11. Chimanlal J. Dalal	5
12. Merwanjee Bomanjee Dalal	5
13. Rasiklal Maneklal & Co.	5
14. Mahadevia Bros.	7
Total	Rs 122 lakhs

The Directors were of the opinion that the resources of the underwriters were sufficient to discharge their respective underwriting obligations. As a condition of underwriting, the Company had agreed to allow the Industrial Credit and Investment Corporation of India Limited to reserve the right to appoint their nominee on the Company's Board of Directors as long as the Corporation held Bonds of the face value of Rs 10 lakhs or ordinary shares of the face value of Rs 2 lakhs on conversion of the Bonds.

An underwriting commission at the rate of $1\frac{1}{2}\%$ of the nominal value of Bonds underwritten was payable to underwriters. In addition, a brokerage was payable by the Company to the underwriters, brokers, and bankers at $\frac{1}{2}\%$ of the nominal value of Bonds. The expenses of this issue payable by the Company, inclusive of underwriting commission, brokerage, stamp

duty, printing charges, registration fees, legal charges, professional fees for the issue, and Auditors' fee were estimated to be Rs 5 lakhs.

The Company had entered into collaboration agreements to obtain supply of machinery equipment and mercury from an Italian firm for manufacture of caustic soda-chlorine. The Company had to pay a total price of Rs 2,92,35,000. The repayment by the Company was to be guaranteed by a bank or financial institution. The Company had entered into an engineering agreement with another Italian firm for supply of all technical data for the entire project after paying Rs 1,50,000. It had also entered into service agreement with this very firm for looking after the erection, commission and trial run of the factory and providing technical personnel.

The Company had got a plot of land measuring nearly 100 acres in Thana district from the Maharashtra Industrial Development Corporation. The basic raw material required for the manufacture of electrolytic caustic soda was common salt. Power was next in importance to salt as it accounted for a substantial portion of the cost of production. Besides this, mercury and graphite constituted the main cell components. Black plain mild steel sheets were required for fabrication of drums for taking fusion caustic soda. Few other auxiliary materials were also required. Of the raw materials required for the project, mercury and graphite electrodes were to be imported and were covered under the Purchase Agreement with the Italian firm, and other raw materials were indigenously available. Adequate arrangements were made for water and electricity. The location, contour, soil condition, access to water and electricity, raw materials and markets contributed to making the site at Thana suitable for the establishment of this project. The Company had received the necessary licences for the import of plant, equipment and mercury. The project was expected to go into production by about the middle of 1967.

Within the two preceding years, the Company had not made any issue of shares, debentures or bonds either for cash or otherwise. No portion of this bond issue was earmarked for subscription to the existing shareholder and no firm allotment had been made. In the event of the bonds being over-subscribed, it was intended to give preference to the existing shareholders applying for the same on such suitable basis as might be devised by the Directors.

Information regarding sales, income data and share capital of the Company can be referred to in Exhibits 2 and 4.

The climate in the capital market in 1965-66 can be judged from the behaviour of the Reserve Bank Index for Variable Dividend Securities (Base: 1961-62=100). The Index declined from 75.3 for the week ended

October 30, 1965 to 71.5 for the week ended December 18, 1965—an all-time low level—as against about 85 in December, 1964. Thus there was a decline of nearly 16 per cent over the year. A recovery was, however, noticed in share values since mid-December, 1965 and RBI Index improved to 75.9 for the week ended March 26, 1966. The recovery in equities was induced by the fiscal reliefs and incentives announced in the 1966-67 budget and it further gained momentum during April 1966 following the liberalisation of imports of 30 essential items under the Import Policy for 1966-67. Moreover, a spate of Bonus Shares and encouraging corporate news further strengthened the market sentiment. The RBI Index

Exhibit 1

The Standard Mills Company Limited
Cost and Sources of Finance of the Project

	Total (Rs in lakhs)
<i>Estimated Capital Cost</i>	
Land, development, leveling & grading of land; construction of roads etc.	24.20
Buildings—Production and Residential	58.00
Plant, Machinery and Mercury	488.25
Engineering and Service fees	2.00
Expenses relating to foreign technicians and training abroad ..	4.00
Motor Cars, Lorries, Furniture, etc.	10.00
Commission on Bank Guarantee, and other expenses (excluding interest during construction period)	5.85
Expenses of the issue	5.00
Contingencies	23.70
Total ..	621.00
Working Capital	54.00
	<u>675.00</u>
<i>Sources of Funds</i>	
Deferred Term Credit from 'De Nora' Italy, in Foreign Exchange ..	263.12
Bank of Baroda Ltd., London, in Foreign Exchange	29.23
Issue of 24,400, 7½% Convertible Bonds of Rs 500 each.. ..	122.00
Medium-term loan from Financial Institutions	200.00
Internal Accruals (apart from Rs 29.23 lakhs to be deposited against equivalent foreign exchange loan of the Bank of Baroda Ltd.) ..	60.65
Total ..	<u>675.00</u>

Exhibit 2. *The Standard Mills Company Limited*

(Balance Sheet)

(Rupees in crores)

As at 31st Dec.	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Current Assets	4.56	4.04	3.28	3.82	4.38	5.71	6.22	7.55	9.87	10.61
Fixed Assets (Net)	2.27	2.68	2.81	3.20	3.12	2.89	9.63	10.99	10.73	10.55
Misc. Assets	0.11	0.11	0.11	0.42	1.02	2.77	0.91	0.22	0.11	0.10
Intangible Assets	..	..	..	..	..	..	..	..	0.03	..
Total Assets	6.94	6.83	6.20	7.44	8.52	11.37	17.16	18.76	20.72	21.26
Current Liabilities	2.56	2.39	1.72	2.86	3.89	4.54	8.79	10.26	7.84	7.60
Deferred Liabilities	..	..	..	0.05	0.08	2.10	2.83	2.82	5.78	5.17
(i) 7½% Convertible Debentures	..	..	..	..	..	1.22	1.22	1.22	1.22	1.22
(ii) Long-Term Loans	..	..	..	0.05	0.08	0.88	1.61	1.60	4.56	3.95
Shareholders' Capital	1.66	1.66	1.66	1.66	1.66	1.88	1.88	1.88	1.88	1.88
(i) Preference Capital*	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
(ii) Equity Capital**	1.54	1.54	1.54	1.54	1.54	1.76	1.76	1.76	1.76	1.76
Shareholders' Reserves	2.72	2.78	2.82	2.87	2.89	2.85	3.66	3.80	5.22	6.61
Total Liabilities	6.94	6.83	6.20	7.44	8.52	11.37	17.16	18.76	20.72	21.26

Source: *Stock Exchange Official Directory*.

*Preference Share Capital—6,000, 5.72% Cumulative Redeemable First Preference Shares of Rs 100 each (redeemable at any time by giving six months' previous notice).

6,000, 5.72% Cumulative Redeemable Second Preference Shares of Rs 100 each (redeemable at any time by giving six months' previous notice).

**Up to 1965, the Company had issued and subscribed ordinary shares amounting to 1,53,650 of Rs 100 each and in 1966 it issued 21,950 Bonus Equity Shares in the proportion 1 : 7. Thus the number of ordinary shares increased to 1,75,600 from 1966 onwards.

Mafatlal Gagolbhai & Co. Private Ltd. (ultimate holding Company) held 49,420 ordinary shares, 7 First Preference Shares and 7 Second Preference Shares in the Standard Mills Co. Ltd. The New Shorrock Spg. & Mfg. Co. Ltd. (subsidiary of the ultimate holding Company) holds 63,600 ordinary shares in the Standard Mills Co. Ltd. Thus these two Companies held nearly 64% of the ordinary shares of the Standard Mills Co. Ltd. on December 31, 1970.

Exhibit 3

The Standard Mills Company Limited

Equity Share Data

Year ended 31st Dec.	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Earnings per Share (Rs)	46.56	19.72	22.05	23.46	21.12	27.80	66.03	27.20	106.02	106.55
Earnings-Price Ratio (%)	4.44	2.44	3.03	4.02	6.15	8.26	13.21	5.69	20.97	16.46
Earnings-Distributed (%)	53.69	101.42	90.70	85.25	94.68	62.95	30.29	73.53	33.64	26.28
Dividend per Share (Rs)	25.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	25.00	28.00
Dividend (%)	25.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	25.00	28.00
Yield (%)	2.39	2.48	2.75	3.43	5.82	5.94	4.00	4.19	4.95	4.32
Book Value per Share (Rs)	277.10	280.82	283.27	286.78	288.14	262.63	308.66	316.20	397.60	476.32
Market Price per Share										
(i) High (Rs)	1680.00	1220.00	908.00	855.00	608.00	450.00	517.00	504.00	658.00	692.00
(ii) Low (Rs)	955.00	755.00	648.00	553.00	321.00	310.00	346.00	410.00	465.50	497.00

Source : *Stock Exchange Official Directory.*

Exhibit 4

The Standard Mills Company Limited

Income Statement

	(Rupees in crores)									
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
At the end of 31st December										
A. Net Sales	8.70	10.10	10.68	11.95	12.74	13.89	15.96	19.89	24.58	27.72
B. Cost of Goods Sold	6.80	8.54	9.04	10.06	10.79	11.67	13.51	16.65	19.51	22.08
C. Gross Profit	1.89	1.56	1.64	1.89	1.95	2.22	2.45	3.25	5.07	5.64
D. Operating Expenses	0.64	0.77	0.89	1.11	1.18	1.17	1.50	2.92	3.36	3.58
E. Operating Net Profit before Depreciation	1.59	1.17	1.27	1.38	1.37	1.60	1.63	1.58	3.13	3.59
F. Operating Net Profit	1.25	0.79	0.75	0.78	0.76	1.04	0.95	0.33	1.71	2.06
G. Net Profit	1.32	0.73	0.78	0.82	0.80	1.09	1.16	0.48	1.87	2.26
H. Provision for Taxation	0.60	0.42	0.43	0.45	0.46	0.59	..	..	..	0.38
I. Final Net Profit	0.72	0.31	0.34	0.37	0.33	0.49	1.16	0.48	1.87	1.89
Dividends										
(i) Preference	39.10	31.42	31.42	31.42	31.42	31.42	35.81	35.81	44.59	49.85
(ii) Equity	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.68
	38.41	30.73	30.73	30.73	30.73	30.73	35.12	35.12	43.90	49.17

(Rupees in lakhs)

Exhibit 5

*The Standard Mills Company Limited*Closing Date Quotations¹ on Selected days²

Date	Equity Rs	Bonds ³ Rs
31- 3-1968	467.50	119.00
31-12-1968	465.00	117.50
31- 3-1969	512.00	125.00
31-12-1969	502.00	130.00
31- 3-1970	612.00	130.00
31-12-1970	640.00	130.00
31- 3-1971	655.00	130.00
31- 7-1971	630.00	165.00

Source: *Stock Exchange Official Directory*.¹ Bombay.² As on dates mentioned or as last recorded prior thereto.³ A multiplier of 5 should be applied to find out market value of Bond as this quotation relates to 1/5 of the Bond's par value of Rs. 500.

went up to 81.4 for the week ended April 30, 1966. The post-Budget up-trend was arrested in May and equities evinced an easy tendency till mid-September 1966 when RBI Index declined to 77.1

The Company issued convertible bonds in preference to the issue of equity shares considering that the equity shares would not get a good response from the investing public. Moreover, the Company might not be in a position to maintain dividends on the new equity shares if raised. So it was thought desirable to issue convertible bonds instead of equity shares.

The response from the investing public was small. The Company received 1,035 applications applying for 17,024 bonds out of which the general public invested for 4,386 bonds and the remaining were applied for by the financial institutions which constitute the main investors. And 7,376 bonds had to be allotted to underwriters.

The following financial institutions have invested in the Convertible Bonds:

Name of Institution	No. of Bonds
1. Unit Trust of India	3400
2. Industrial Credit & Investment Corporation of India Ltd.	2616
3. Bank of Baroda Ltd.	2317
4. United Commercial Bank Ltd.	2280
5. New India Assurance Company Ltd.	2000
6. Bank of India Ltd.	1782
7. Central Bank of India Ltd.	1592
8. Indian Guarantee & General Insurance Company Ltd.	1200
9. Industrial Investment Trust Ltd.	990
10. The Investment Corporation of India Ltd.	945
	<hr/> 19122 <hr/>

SUGGESTED QUESTIONS

1. Examine the merits of the issue of Convertible Bonds in the Standard Mills in 1966 as against the alternatives of issuing straight debentures or equity shares.
2. Give your opinion regarding the following terms and conditions of conversion included in the agreement :
 - i. Fixation of premium.
 - ii. Period for exercising the option of conversion.
 - iii. Time limit of six months for conversion.
 - iv. Redemption feature.
 - v. Rate of interest.
 - vi. Discretion given to ICICI to nominate a person on the Company's Board.
3. Could the issue be made without getting it underwritten ? What would have been the risks in that case ?
4. How much would be the dilution in EPS and control of existing equity holders after conversion of Bonds into equity ?

Employees' Equity Ownership Plan

"Why don't we have a plan for selling shares to employees?" is a question now being raised by both the management and workers themselves. Workers purchase their company's stock for three principal reasons—(1) If they believe in the soundness of the company's financial position and its prospects for continued prosperity, they may want to share in this prosperity through the ownership of its stock. (2) The workers may wish to identify their interest with their company by becoming part-owners, even though in a small way. (3) Continued rise in stock prices captures the interest of many people and they wish to share in these gains.

For the average worker, it is not easy to buy shares of his company's stock without some help from the concern because he is unacquainted with the ways of the financial world. Where will he get the money to make the purchase?

Motives for selling the stock. Plans for selling company stock to employees, however, have largely resulted from the initiative of management, although some have had their main impetus from requests of employees. The chief reason for instituting such plans has been the desire of the management to make employees partners. If the worker shares in the ownership of the business, it is logical to suppose that he will have a greater interest in and devotion to his job and to the company. If he is in a sense working for himself, he should be more alert to the possibilities of saving the corporate money through the elimination of waste, through increased efficiency and in many other such ways. Another motive for adopting an employee stock purchase plan is to promote employee thrift. If the stock is paid by periodical pay-roll deductions, the worker can accumulate savings in a relatively painless manner. Several stock purchase plans in the United States were installed for this purpose.

As a result of the drift towards socialism and state ownership of the manufacturing facilities, many executives believe that the wide distribution of shares throughout the population is a good way to bring home to all people the advantages of the free enterprise system. The ownership of shares, it is believed, may make the worker a staunch supporter of the present economic order.

The stock purchased under a company plan may provide the retired worker with additional income through earnings on his stock.

The motives lying behind the offer of securities to rank and file employees may be summarised as follows :

(a) Non-financial—

- (i) promotes employee thrift and welfare;
- (ii) provides additional retirement income that contains a hedge against inflation;
- (iii) gives employees a better understanding of the principles and advantages of the free enterprise;
- (iv) provides favourable publicity and helps in image building.

(b) Financial—

- (i) reduces labour turnover;
- (ii) increases labour efficiency;
- (iii) permits wider diffusion of stock ownership, lending to greater permanence of management and narrow stock price fluctuations;
- (iv) helps in raising new funds economically.

The majority of stock-purchase plans probably grew not out of a need for funds but out of a feeling that employees would be encouraged to team-work and co-operation if they had a stake in the company's financial success. Also, the lowering of the barrier between labour and the owners of the property was considered as a healthy practice.

The success of employees' stock-ownership plans appears to depend primarily on the price performance and dividend record of the stock after acquisition by the employees. The fact that many companies have not offered stock to their employees may well be due to the fear that more ill-will than good-will may be created. Many employees are likely to attribute a stock market profit to their own efficiency and to blame management for any loss. Many do not understand the risks they are undertaking in possible fluctuations in the price and dividend income of the stock. Management may even doubt that it is wise for rank and file employees to place their small savings in stocks as most companies prefer to build their labour policy around matters of wages, hours and working conditions, and

to keep their financial policy distinct from matters of industrial relations. They let employees take the initiative in investing in the company. The management of American Motors Company, for instance, decided against the general employee stock-purchase plan, but agreed to put its pay-roll deduction arrangements at the disposal of those employees who wish to buy stock on the monthly investment plan. In contrast, public utilities in the United States, with their more stable earnings and repeated offerings of common stocks, have been among the more frequent users of employee stock investment in their companies.

Advantages and disadvantages to the employee. The employee may receive a higher return than he would if he invested independently (this implies either that the company he is employed in makes more than average profits or that the stock he purchases has some special advantage over securities available in the general market). In a number of plans, the stock has been sold at a price below the going market price as a privilege subscription available only to employees. The company makes saving easier by permitting an instalment plan of payment.

More important than the special advantages of employee stock-purchase plans is the quality of the particular stock purchased. No generalisation is possible on this point, for the merits of good stock depend upon the business of the company, its capital structure, the nature of the stock, the timing and price of the shares, and the terms upon which the purchase contract is executed.

The important disadvantages are the general risk of stock investment, and the probable inadvisability for most employees of risking their savings in the business in which they work. Many investment advisors hold the view that the employee of small means should place his savings in the conservative form of investment, partly because his means are small and partly because he lacks financial skill. Placing his savings in the stock of the company for which he works involves an enhanced risk.

The employee stock-ownership is no panacea for labour-management disputes. The individual stock holdings of employees are so small and so widely scattered as to preclude any representation in management. In a few companies in the United States, employees as a group have purchased enough shares to give them representation. Employee stock holders of corporations like the American Telephone and Telegraph Co., Westing House Electric Corporation and Practor & Gamble Co., hold substantial percentages of the stock, but exercise only slight influence upon management.

Conditions affecting stock purchase plans. The variety of plans indicates the complexity of the problem. A stock ownership plan may

extend only to executives or highly paid employees or it may include the rank and file as well. The employees may pay for the stock, sometimes on an instalment plan, or the company may advance loan for part or all of it. Often company payments constitute employee compensation and may be fixed amounts or contingent upon earnings. The stock may be sold by the company at or below market price, or it may be purchased in the open market. The individual employee may either have his own stock certificate or have an interest in a pool of investments. Often the stock is purchased by employees in the United States companies through the exercise of stock options. These options are generally given to key personnel and permit them to buy stock at a fixed price over a stipulated period.

The conditions under which employees are eligible to buy stock vary widely. In some cases subscription is unrestricted while in others subscription is limited according to length of continuous service, wages or salary received, class of service (a distinction is made between managerial employees and other employees), or number of shares already owned. There are several reasons for setting such limitations. The total amount of stock available may be limited. If the stock can be acquired below market price, unrestricted sale may lead to rapid resale by employees. When stock is sold at a concession in price or with some other bonus feature which represents a cost to the company, the company may wish to limit its liability to individual employees. Further, the company may wish to protect the individual employee from excessive instalment payments or undue concentration of investment risk.

Careful planning is necessary to obtain satisfactory long-run results. The class of employees involved, the objective whether to obtain funds or to encourage stock ownership, and the source of payment—whether from the employees' wages or salaries or from some bonus or share in profits—must be considered. A sound plan should consider the financial need of the workers, whose small savings should ordinarily be in a liquid form to meet family and personal emergency with minimum risk. Shares are usually too fluctuating in value for this purpose. Over the long run, equity shares may have a logical place in a retirement plan due to their value as a hedge against inflation and their high return. But the possibility of undue concentration of risk for such persons in equity shares of one company must be weighed carefully. The happy results from employee stock ownership in profitable and growing corporations like Sears, Roebuck & Co., Dow Chemical Co., General Motors Corporation, and American Telephone and Telegraph Company, should not obscure the fact that a company may fall on evil times and have its equity wiped out, as happened in the rail-road and utility holding companies in the United States.

Outlook for employee ownership. It is difficult to generalise as to the future importance of employee ownership since the success or failure of individual plans depends on their particular terms and the period of operation. In the years after World War II, in the United States rising stock markets and fears of inflation caused a renewal and expansion of employee ownership which was accompanied by an extraordinary spread of ownership among the general public. A prolonged decline of stock earnings and prices could dampen this enthusiasm. Non-financial motives may continue to encourage the use of such plans in many quarters and their success will depend partly on the care with which they are worked out and administered and partly upon the degree to which the securities of the companies involved are affected by business cycles.

The growth in individual stock ownership amounted to an average rate of more than one million investors in the United States between 1962 and 1965; paralleling this rise came solid increase in the number of employee stock purchase plans. The New York Stock Exchange Census of Shareholders shows that by 1965, more than 3.5 million shareholders—about 18 per cent of the U.S. total—had bought their stock through the companies for which they worked. This growth in employee stock ownership has been reflected in the increasing number of enquiries about employee stock purchase plans directed to the National Industrial Conference Board of the U.S.A. More and more chief executives and corporate directors as well as personnel administration executives, have become interested in both the mechanics of stock plans and the philosophies they represent. In response to these needs, the Conference Board prepared an analysis of more than 225 plans in 1966 in which employees at all job levels were participating. The study¹ shows that employee stock plans take a number of forms. Every year a new crop of stock plans is proposed to stockholders' approval. These plans vary with the philosophy of management and with the price and history of a company's stock on the market. Each plan is different in its provisions and its effects. But there are patterns which can be traced when common approaches to certain problems arise. Their main objective is to raise the level of employee interest in the long-range corporate goals and problems. They attempt to teach in a practical and easily understandable way the simple facts of rewards and risk amidst the increasing complexities of corporate action, economic reaction, and government regulation. Many executives now feel that such plans bring out not so much an identity of interest between employees and stockholders as an identity of understanding.

¹ "Employees Stock Purchase Plans", *Studies in Personnel Policy*, No. 206, the National Industrial Conference Board (1967).

Types of plans

The plans in this study are grouped into six major categories :

(1) *"Corporate employee MIP" plans.* Under these monthly investment plans, authorised payroll deductions are sent each pay day to a broker for the purchase of the company's stock on the open market; full shares and fractional shares are then allocated to each individual's account with the broker.

(2) *"Market-purchase" plans.* These plans are identical to the MIP plans except that the company performs most of the functions of broker. The company collects payroll deductions, purchases the stock on the open market, and distributes full shares to participants at specified intervals.

(3) *Loan arrangements.* Some plans have a loan arrangement under which a participant borrows the money to buy stock and then authorises payroll deductions to pay off the loan. In some plans, the company loans the money to the employee; in others, an arrangement is made with an outside bank for these loans.

(4) *Stock-purchase option plans.* These plans are similar to executive stock option plans except that they cover all of rank and file employees. In such a plan an employee subscribes for a specified number of shares of his company's stock at a set price; authorises payroll deductions to pay for the shares; and, at the end of the period, either cancels his subscription or buys the shares. These plans offer the same opportunity for a 'bargain purchase' of the company's stock as an executive stock plan; the market price at the time the employee purchases the stock may well be considerably higher than the option price which he actually pays for the stock.

(5) *'Company-contribution' plans.* These plans are essentially the same as the market purchase plans noted above—except that for every dollar an employee puts into the plan, the company contributes (typically) 23 or 25 cents. Company and employee contributions are used to buy shares on the open market and are distributed over 12 months or less.

(6) *Employee saving plans.* These are essentially the same as the company contribution plans—except that company and employee contributions are put into a trust fund and the company contribution tends to be larger (typically 50 cents for each dollar of employee savings). Because of the trust fund, stock purchases by the company out of the employees' contributions during one year are held in the fund for at least two more years before it is distributed to the employees.

Strategy for employee stock purchase plan

In bringing the stock purchase plan to the attention of the workers, the company is often faced with a dilemma. Wide distribution of stock

among the workers may seem very desirable, but how far should the company go in trying to make shareholders of the workers? Should it conduct a drive to persuade them to buy stock, or should it merely announce that the facilities are available to those who wish to become part owners of the business?

A potent argument against any high pressure campaign is that it may boomerang if the market price of the stock should drop sharply below the purchase price. If pressure had been brought on the worker to buy stock, he quite naturally might blame the company for his loss.

Another argument against putting any pressure on the employee to buy stock is that he may well be suspicious of the company's motives. He may feel that the programme is a way of getting some money from him rather than as a convenience or benefit to him. In view of these factors many companies in the United States have approached the problem of presenting the plan to employees rather cautiously. The attitude seems to be: "Here it is, take it or leave it."

Many companies go a few steps further in letting employees know that their company's stock is available for sale and the company will help them financially in making their purchase.

Most of the stock purchase plans provide for stockholders' approval. Even those companies which are not required to seek this approval either by their charter, state law, or by New York Stock Exchange regulations consider this action advisable. By obtaining this approval, the possibility of stockholders' suits may be reduced.

The New York Stock Exchange has two basic listing requirements regarding stock purchase plans. A company listing its securities on this Stock Exchange must sign an agreement that it will comply with certain regulations. One term of the agreement required that the company should disclose the proposed employee stock offering plan to stockholders. Another condition which directly affects stock-purchase plans is the listing policy which required stockholder approval of any new or additional issue of stock. Where the source of the stock for employees is a new or additional amount of security, it is the policy of the Exchange to require approval by stockholders as a prerequisite for listing.

Some state laws and charters of many companies provide that stock holders shall have equal rights to subscribe to new issues of stock before it can be offered to outsiders. Unless special provisions are made to waive these rights, common stock holders would have the privilege of subscribing prorata to the issue of stock offered to employees under a stock purchase plan. Therefore, under the circumstances, the stockholders are asked to give up their claim to these rights.

Position in India. Section 81 of the Companies Act, 1956, provides that further issues of capital should be offered to existing equity shareholders in proportion to the capital paid up on these shares. Such shares are popularly called "right shares". However, sub-section (1) (A) to Sec. 81 provides that further shares may be issued to outsiders if the company at a general meeting passes (1) a special resolution authorising the Board to allot shares to outsiders, or (2) an ordinary resolution to that effect is passed and the Central Government's approval is obtained, the Board may allot the shares to outsiders.

Under Sec. 77 of the Companies Act, a company cannot buy its own shares, and also cannot give loan or financial assistance or guarantee directly or indirectly for acquiring its own shares or the shares of its holding company. But sub-section (2) (c) to Sec. 77 provides for lending money to employees of the company to enable them to subscribe or purchase the company's shares to be held as beneficial owners provided that such loan does not exceed more than the amount of their salaries and wages for a period of six months.

Workers' sector : Employees' equity ownership plan

In May 1976, the Union Finance Minister propounded the idea of having the workers' sector where the huge sum of Rs 1000 crores of impounded dearness allowance could be invested. This would facilitate participation in investment by the workers, besides lending a real meaning to workers' participation in management. A Cabinet Committee has been set up to formulate the scheme for creating the workers' sector in the economy. The Committee decided to set up a task force to draw up a blue print for the workers' sector which, in course of time, will be discussed with trade union leaders. Although the Finance Minister had indicated investment of the money impounded under the Additional Emoluments (Compulsory Deposit) Scheme in foreign firms where foreign equity is being diluted, the intention now appears to be to introduce workers' shareholding in both private and public sectors.

The objective of the scheme is stated to be to fulfil workers' needs and aspirations and impart dignity to the working class. This will also enable workers to hold shares in companies with which their future is tied so that it will result in greater production and productivity. The basic idea behind the scheme is that shareholding by workers is germane to their meaningful participation in management. With this end in view, care will be taken to ensure that representatives sponsored by recognised unions as workers' directors are actual workers employed in the undertaking. The investment of workers' income in productive enterprises will

also build a powerful lobby of workers in the economic and social structure of the country ensuring that the enterprises are run effectively.

It is pointed out that the experiment of workers' shareholding has already been tried in Hindustan Chemicals and Hindustan Antibiotics. The results of these experiments have been very encouraging from all points of view. The Union Finance Minister was prepared to set apart some of the most profitable industries for the workers' sector. In this context, he indicated that the foreign companies which had begun to disinvest in the Indian branches with majority shareholding could be included in the proposed workers' sector. He assured the Members of Lok Sabha that proper accounts had been maintained for the impounded amounts and there would be no difficulty in repayment. If this amount, deposited with the Reserve Bank of India, was repaid, it would go into consumption and be frittered away.

The task force will have to examine many issues to be able to formulate appropriate guidelines for implementing the workers' sector scheme. Can deposits secured from workers under a compulsory scheme be converted compulsorily into a risk equity capital implicit in the proposed workers' ownership scheme? Are the workers' funds to be invested only in new ventures or also used for acquiring shares in the existing private/public sector enterprises in an attempt to make participation in management more meaningful? What kind of industrial units are to be set up with these resources? In what way are the workers going to be associated with these enterprises? How are the workers' interests to be safeguarded against the misuse and mismanagement of their savings? Will they continue to receive at least the 12.5 per cent return (2.5 per cent over the maximum bank deposit rate) which they are now getting on these deposits? If workers' savings are proposed to be channelled into the new sector on a continuing basis, does it mean that the compulsory savings scheme will be made a permanent feature? What will be the nature of institutional set-up for investing such massive funds?

An idea to set up a workers' investment corporation has been mooted to enable the workers to share the gains of capital appreciation and profits of enterprises. Doubts have been raised regarding its feasibility. The role of equity in corporate finance has been steadily shrinking over the years and cult of equity stands thoroughly discredited today. Good growth shares are scarce. That the Unit Trust of India should have deemed it necessary to suspend its capital unit scheme after collecting a little over Rs 7 crores and that it should have been unable to invest it is a measure of the acute shortage of growth shares which could qualify for investment under the scheme. Secondly, many are not inclined to share the view that workers' ownership of shares will make participation in management

more meaningful and effective. If their presence on the company board of directors representing the various public financial institutions has not made any noticeable difference to the quality of management of private sector enterprises, it would be wishful to think that workers' financial participation will help improve matters. Thirdly, as regards investment in public sector enterprises, it would only imply a formal change in the nomenclature of funds employed in the enterprise. Apart from the question of prices at which the shares can be had for the workers, few public sector enterprises pay attractive dividends to ensure a return comparable with that obtainable from other avenues of investment.

Impounded funds can be advanced as loan capital and managed by an apex body, controlled by board of trustees with workers given due representation. The apex body should identify areas of investment of these funds and formulate schemes and prepare plans which could be taken up for implementation by individual organisations created for the purpose. It need not be one scheme. Three or four schemes can be evolved. If properly invested, there would be a package and not just a basket.

Appendix

LIST OF AUTHOR'S CASE STUDIES*

S. No.	Abstract	Course & Topics	Setting	Positions Involved	Identification
1.	<i>Indra Chemicals & Pharmaceuticals Limited:</i> A discussion of the place of public deposits in the financial structure of a company. One has to analyse the problem of the extent of reliance on this source of financing	Finance Debt Financing	Western India Chemicals Medium size Finance—Office 1963	Financial Controller and Top Management	IF & A 1 pp. 9 S. C. Kuchhal
2.	<i>AB Electricity Company</i> A case dealing with medium-term financing in a small-sized electricity company. It can also be analysed from the point of view of a loan officer in a financial corporation	Finance Term Lending & Borrowing	Western India Elec. generation and distribution Small size Finance—Office 1963	Financial Controller and Loan Officer	IF & A 2 pp. 23 S. C. Kuchhal

*Any of these case studies can be ordered directly from the Case Unit, Indian Institute of Management, Ahmedabad-15 by giving identification number. The information provided by this statement would be useful in selecting the case studies for the purpose of management development programmes.

S. No.	Abstract	Course & Topics	Setting	Positions Involved	Identification
3.	<i>Sudantara Bank:</i> An integrated case covering tools of financial analysis and forecasting like funds flow, ratio analysis, and forecasting of financial requirements	Finance Financial Analysis Financial Forecasting	India Textile Co. and Bank Medium & Large Finance—Office 1963	Loan Officer in a Bank and Financial Exe- cutive in a Textile Mill	I F & A 3 pp. 7 K. L. Varshneya S. C. Kuchhal
4.	<i>Rajhans Pharmaceuticals:</i> A case on financial forecasting. It relates to the preparation of a projected income statement and balance sheet	Finance Financial Forecasting	India Pharmaceuticals Large size Finance—Office 1963	Financial Controller	I F & A 4 pp. 9 K. L. Varshneya S. C. Kuchhal
5.	<i>Ashok Chemicals & Fertilizers Company:</i> A comprehensive case on the conflict- ing considerations affecting the divi- dend policy in a well established che- mical and fertilizer company	Finance Dividend Policy	Western India Chemicals Large size Finance—Office 1963	Financial Controller	I F & A 5 pp. 12 S. C. Kuchhal
6.	<i>Evergreen Engineering Company (A)</i> An appraisal of a loan application from a small engineering company	Finance Term Lending	Western India Engineering Small-size Finance—Office 1964	The Managing Director of the Financial Corporation	I F & A 6 pp. 13 K. L. Varshneya S. C. Kuchhal

7. *Evergreen Engineering Company (B)* :
Decision by a borrowing company on the terms of loan requested from a financial corporation
Finance Term Lending
Western India Engineering Small-size Finance—Office 1964
I F & A 7 pp. 2
K. L. Varshney, S. C. Kuchhal
8. *Alok Engineering Company Limited* :
Considerations affecting the determination of a dividend policy in a new and expanding engineering company
Finance Dividend Policy
Western India Engineering Medium size Finance—Office 1964
I F & A 9 pp. 9
S. C. Kuchhal
9. *Anupam Sugar Mills* :
A comprehensive advanced case on appraisal of a loan application
Finance Institutional Financing
South India Sugar Medium size Finance—Office 1964
I F & A 10 pp. 9
S. C. Kuchhal
10. *Krishna Cotton Textile Company (A)*
The issue posed in fixing the price of rights offering in a textile mill diversifying in an unrelated field
Finance Making of Rights Issue
Western India Cotton Textiles Medium size Finance—Office 1964
I F & A 11 pp. 12
S. C. Kuchhal
11. *Krishna Cotton Textile Company (B)*
Effects of rights issue on the holdings of shareholders. Considerations to be kept in view in exercising or renouncing their rights
Finance Making of Rights Issue
Western India Cotton Textiles Medium Finance—Office 1964
I F & A 12 pp. 6
S. C. Kuchhal

S No.	Abstract	Course & Topics	Setting	Positions Involved	Identification
12.	<i>Indo-American Chemical Works:</i> The financial implications of entering into an agreement of collaboration with a foreign enterprise	Finance Foreign Capital	Western India Chemicals Large size Finance—Office 1964	Financial Controller and top management	IF & A 13 pp. 18 S. C. Kuchhal
13.	<i>Prakash Textile Mills Limited.</i> A case on analysis of the factors for long-term financing in a textile mill with emphasis on debt-equity relationship	Finance Long-term Financing	Western India Cotton Textile Medium Finance—Office 1965	Financial Controller and top executive in a textile mill	IF & A 14 pp. 11 D. N. Desai & S. C. Kuchhal
14.	<i>Miller-Apte Machinery Manufacturing Co (B)</i> A case giving an opportunity to analyse the problems of the financial management in a small sector enterprise	Finance Financial Management and Small Industry	Western India Machy. Mfg. Small Finance—Office 1965	Proprietor	IF & A 15 pp. 13 D. N. Desai & S. C. Kuchhal
15.	<i>Tata Iron & Steel Company Limited:</i> Funds flow analysis. The student is given an opportunity of making use of the tools of funds flow analysis in decision-making	Finance Financial Analysis Financial Forecasting	Western India Iron & Steel Biggest Finance—Office 1965	Financial Controller	IF & A 16 pp. 8 S. C. Kuchhal
16.	<i>Amalgamated Engineering Company.</i> The case highlights the various approaches of valuation adopted at the time of the merger of three companies	Finance Valuation	Western India Engineering Medium-size Finance—Office	Financial Controller	IF & A 17 pp. 9 S. C. Kuchhal

17. *Identification of Industries :*

The objective of this case is to emphasise the assets and liabilities structure in units of different industries. An opportunity is given to test not only skill but also knowledge about the formation of assets and liabilities structure of units in different industries

Finance
Financial
Analysis

India
Various industries
Various sizes
Finance—Office
1964

Financial
Analyst

I F & A 29
pp. 4
S. C. Kuchhal

18. *Finance of Automobile Companies :*

The case gives the financial ratios for a number of units in the Indian automobile industry. The objective is to use these ratios in the capacity of a lender, an investor, and financial executive of an automobile company

Finance
Financial
Analysis

India
Automobiles
Varying sizes
Finance—Office
1964

Manager

I F & A 30
pp. 14
S. C. Kuchhal

19. *Amalgamation of Investa with Telco (A)*

This case deals with financial problems involved at the time of amalgamation of one company with the other. The most important financial problem is the valuation of shares for establishing a ratio for exchange

Financial
Management
Financial problems
arising out of amalgamations of two companies, considerations affecting the valuation of corporate shares, adjustment of rights of shareholders

India
Engineering
Large
Finance
1966

Top and Senior
Management

I F & A 34
pp. 13
S. C. Kuchhal

S.No.	Abstract	Course & Topics	Setting	Positions Involved	Identification
20.	<i>Amalgamation of Incoesta with Telco (B)</i> This is the second part of the case (A) providing an opportunity for discussing the issues which relate to the valuation of preference shares on which dividends were in arrears for a long period. This valuation of preference shares has to be made at the time of amalgamation	Financial Management Position of preference Shareholders vis-a-vis ordinary shareholders, Valuation of cumulative preference shares, Relations of management with shareholders	India Engineering Large Finance 1966	Top and Senior Management	I F & A 35 pp. 6 S. C. Kuchhal
21.	<i>Conversion of Tata Deferred Shares into Ordinary Shares (A)</i> This case deals with the problems that arose at the time of converting Deferred shares into ordinary shares with a view to simplifying corporate capital structure. Best legal, accounting and technical brains were engaged in resolving this problem	Financial Management Merits and limitations of the different approaches to share valuation	India Engineering Large Finance Bombay 1954	Top and Senior Management	I F & A 48 pp. 14 S. C. Kuchhal
22.	<i>Conversion of Tata Deferred Shares into Ordinary Shares (B)</i> This is in continuation of (A) case. In addition to the application of the concepts of market price and book value to the valuation of shares, it introduces other sophisticated approaches like the concept of 'fair value'	Financial Management Concept and mechanics of determining fair value of shares	India Engineering Large Finance 1964	Top and Senior Management	I F & A 51 pp. 17 S. C. Kuchhal